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USSR Report

TRANSPORTATION

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AVIAREMONT CHIEF ON AVIATION REPAIR MODERNIZATION

Moscow VOZDUSHNYY TRANSPORT in Russian 8 Aug 85 p 3

[Article by Ye. Kitov, chief of the All-Union State Aviaremont Industrial Association: "Orienting The Search"]

[Text] How quickly can the equipment level in ground aviation equipment enterprises be improved so that they are not lagging behind the modern aircraft now operating on Aeroflot routes? What has to be done to achieve a qualitative work transformation? These are the today's central issues for collectives in the Aviaremont Association and in civil aviation experimental plants.

Here is our mission. We must provide for the industry's technical development by developing and comprehensively installing the newest, most effective technological transportation processes. This was the dominant thought at a recent meeting of the directors and chief designers from experimental plants. There was also an urgent call for methods to accelerate scientific-technical progress.

We are still far from fully modernizing the technical level of civil aviation enterprises and in many departments the level of mechanization is below 40 percent. This sphere of the industry's scientific-technical system is truly untouched.

How do you explain this situation? In general, it is rather simple. The system for managing scientific-technical progress and planning the sequence of technical developments in the industry is antiquated. This has led to a lack of control over the equipment level in aviation enterprises, the fact that scientific-technical programs are not integrated, etc.

Here is an example. One would think that after the experimental model of a new piece of equipment has been tested and the annual production quality has been coordinated, associations would not have a problem with production planning. But it happens. Every year factories are upset about the lack of clear and timely information from GUZSANT [not further identified] on what the enterprises' future equipment requirements will be. The fact is that Aviaremont should have had clear-cut information on the industry's 12th Five-Year Plan experimental plant production requirements broken down by year as far back as September 1984.

This is how it should be. In practice GUZSANT determined this information for the five-year plan in June of this year and their data was significantly lower than the output of completed plants. How can factories be responsible for a "portfolio of orders", if GUZSANT has not developed it?

New refined requests for new materials and components are being generated in a hurry, but in the majority of cases Aviatekhsnab and territorial supply agencies are interpreting all these refinements as omissions and for the most part are not accepting them. Thus factory initiative is frozen, production collectives are thrown out of rhythm and turmoil and confusion are introduced. There really is a high demand for many products. The only problem is that errors are allowed in the operations of the business service. The association's rights are unprotected and no one is responsible for priming factories.

Today we cannot rely only on the initiative, creativity and responsibility of aviation enterprise managers to resolve the tasks of scientific-technical progress in industries. To make this transition to intensification, we must set up some mechanism that has science, production and use all interested in the end result. The major deficiency today is the fact that labor productivity and its growth are being planned for the enterprises, but the replacement of machines and the tempo for up-dating equipment are not primary indicators. As a result, managers that are not to efficient "forget" to order new equipment in a timely manner. Also scientists feel that contemporary factories must completely modernize their equipment every five years so that they are always at the level required by scientific-technical progress.

One of the primary issues in improving civil aviation's scientific-technical structure is the structural situation in its experimental plants. Manufacturing industries have three views on test and experimental production. The essence of the first, as defined by the all-union position on test plants is that this is where test models of new equipment are generated and where industrial control series are produced. The second opinion, which is more wide-spread and more legitimized by life, is that a factory is officially considered experimental, but it produces a standard product. And finally, the third is a compromise variation bridging the gap: an enterprise must both give examples of new equipment and produce a standard model of this equipment.

In our industry (I add moreover that it is not because of good practice) a fourth variation has also developed. Experimental plants not only develop model and mass-produce products, they in fact also conduct research work to develop new equipment.

There is no doubt that civil aviation has its own peculiarities and is different from production. The development of ground equipment is not a major area of the ministry's activities and therefore the existing NII [scientific research institute] organizational structures have no specialists and developers working on modern equipment to outfit the basic technological processes in air transport.

The Ministry has transferred client functions to GosNii GA [State Civil Aviation Scientific Research Institute], Aeroproekt, NETS AUVD [not further identified]. They define the desired technical characteristics of new equipment, as a rule without conducting the necessary experimental research. Institute specialists become familiar with the new equipment only during the acceptance tests and only here do answers to the questions "Is this new equipment really necessary?" and "Did the institute order it?" come to light.

I will give you just one of many examples. Several years ago GosNii GA gave us the initial requirements for a diagnostic instrument to monitor electric engines in the electrical devices of the TREST aircraft system. The chief designer's officer for factory No 20 had been working on the development of this instrument for five years. As the client wanted, the design checked voltage fluctuation in the electric motors. Yet when the model was ready and, as the saying goes, locked in concrete, the clie t changed his point of view. The instrument was too complicated for the institute and GosNii GA demanded a new design. The problem in this case was more than just the labor that was expended or the time and materials that were lost. The problem was that the scientific pursuit was notaccurately oriented. And what responsibility does the institute have for this? None.

The collectives in civil aviation experimental factories are now actively searching for solutions to the tasks involved in fundamentally changing the technological level of ground equipment, increasing the quality and reliability of their products, reducing the development and assimilation time period and increasing standardization of ground technology production.

But at the same time, the solutions to these tasks conflict with the actual state of affairs. Factory production capabilities do not meet designer capabilities in developing highly reliable contemporary ground equipment. The general economic line in integrating science and production and strengthening the factory sector of science is closely associated with the development of industrial design capabilities. However there can really be different forms for integrating and the structure of the system must be based on an extensive, comprehensive analysis of their ability.

There is no doubt that combining scientific organizations, design buros and experimental bases and test and serial manufacturing in scientific-production associations within the fields of production is an effective method for tying science and production together. On the average, the "research-production" cycle has been reduced by a factor of 1.5 and the output of new products that meet the highest demands is increasing.

Today civil aviation test plants have already been united within the framework of the Aviaremont VGPO [All-Union Production Association]. However, as before, reinforcing them with scientific cadre and highly qualified developer-designers and developing test production and research proving grounds are as yet unresolved issues. In our opinion a science section from such industrial institutes as support the trend of the associations' activities should be added to the associations. Outstanding factories No. 85, 20, and 408 should be converted into industrial engineer centers combining all four basic phases

in the development of new equipment (research, development, manufacture and testing of new models and also the manufacturing of model sets) within the framework of a single organization.

The capabilities which our intra-industrial industry have available allow the process of technically transforming aviation enterprises to a new qualitative level to be accelerated so that they can reach new heights in all categories of civil aviation operations in a very short time. The only requirement is that they make maximum use of these capabilities in practical matters and, most of all, that they overcome the organizational barriers enroute to accelerating scientific-technical progress.

12511
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CIVIL AVIATION

SCIENTIST URGES STREAMLINING OF EXTERNAL AIRCRAFT SURFACES

Moscow VOZDUSHNYY TRANSPORT in Russian 10 Aug 85 p 3

[Article by V. Sergeyev, senior scientific associate at the Civil Aviation State Scientific Research Institute: "There Are Still Problems With Surfaces"]

[Text] Our newspaper has already raised the issue of the effect an airplane's external surface quality has on its aerodynamic characteristics (in the article "Solving Problems With Surfaces" in VT [VOZDUSHNYY TRANSPORT] No 74 on 18 June, 1983). This article covered the fact that a dirty glider surface, irregularities in paint and varnish, construction elements that protrude from the surface and instrumentation equipment lead to a fuel loss of up to six percent per flight. Aren't these impressive numbers!?

Calculations show that one third of the additional expenditures are because of projections and construction elements.

Take the flashing light for example. It is certainly not built with aerodynamics in mind and the same thing could be said for the icing sensor. We have named just two protruding elements, but an airplane has many of them. The Tu-154 for example has more than 150 counting all the air intakes and antenna cowlings, all the monitors and various ground operation elements. As with the flashing light, the majority of them have shapes that are not really streamlined and in addition some elements (baggage door hinges and so forth) extent beyond the theoretical contour and antennas are reinforced with bolts having raised heads. All of this combines to increase the cross-section (ie, the surface area of elements that extend perpendicular to the windstream). The Tu-154, our largest medium-range airplane, has a very large cross-section -- over 0.3 square meters! It is about the same on other airplanes such as the Il-62, Tu-134 and Il-86. I will tell you for comparison that several foreign airplanes have a cross-section of 0.1 square meters.

What can we do to improve the external surface quality of airplanes and in particular to reduce the cross-section and the number of protruding elements?

A work group was created to solve this problem. It includes leading experts from the Ministries of Aviation Industry and Civil Aviation. Experimental data has shown that the problem is still not being eliminated and preliminary calculations show that if the total cross-section of protruding elements is reduced to 0.1 square meters we can save up to 30,000 tons of fuel per year in mid-range airplane operations alone.

What actions must be taken in the very near future? The first task which the work group experts must resolve is developing a restraining list for construction elements that extend into the surface plane and for instrumentation equipment. These experts are now involved in preparing normative documentation which will regulate the dimensions of protruding elements and their aerodynamic shapes and will reduce the number of ground operations elements to a minimum.

We plan to reduce the number of instruments by using multi-channel and multi-function equipment. The local windstream direction with the cruising range will be taken into consideration when the shapes of protruding elements are being determined. Take a simple thing as the rain deflector which is attached right on the door. It turns out that it can be canted slightly so that it is parallel to the local windstream.

Provisions for the possibility of "concealing" ground servicing elements (handles and safety hinges used when ground service personnel are working) during construction will be examined or they will be made removable.

The work of reducing the number of elements and improving their aerodynamic shape demands immediate action. Specialists from the Ministries of Civil Aviation and Aviation Industry must resolve these tasks as quickly as possible. I remind you that we are talking about an aviation fuel savings of tens of thousands of tons per year.

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CIVIL AVIATION

KAMOV EXPERIMENTAL DESIGN BUREAU CHIEF INTERVIEWED

Moscow IZVESTIYA in Russian 8 Jul 85 p 3

[Interview with Sergey Viktorovich Mikheyev, chief of the Experimental Design Bureau imeni N. I. Kamov, doctor of technical sciences and Lenin Prize winner, by I. Andreyev under the rubric: "Chief Helicopter Designer S. V. Mikheyev Reflects on his Profession, Vocation of an Engineer": "Everything Begins with an Idea...;" date and place unspecified]

[Text] At 36 years of age he headed the Experimental Design Bureau imeni N. I. Kamov, and today Sergey Viktorovich Mikheyev, doctor of technical sciences and Lenin Prize winner, has 11 years of service behind him as a supervisor of the OKB [Experimental Design Bureau]. If one resorts to a countdown, which is popular in the space age, his biography looks as follows: at 32 years of age a chief of a department; at less than 30 a leading designer; and at 24, immediately right out of school, an associate of a long-range planning department, the "holy of holies" of any KB [design bureau].

[Question] Sergey Viktorovich, how is work in anticipation of the future created by yesterday's graduate in the bureau's brain center, where new projects originate?

[Answer] Well, first of all, it is not such a rarity for our design bureau In the second place, it turned out for me that way also as a result of the persistence with which I defended the project for my degree--a crane helicopter with four rotors. The power system and rotors from a real machine, rotating wing aircraft Ka-22. I devised many things, even an elevator for crew members, since the helicopter was a powerful and tall one. I had portrayed everything in great detail. The day of defense... I described to the commission, which was headed by Nikolay Il'ich Kamov, what I was supposed to. I was showered with questions, many questions. It is only now, when I happen to attend such defense sessions, that I understand why they "attacked" me in such manner. The people are simply interested: all of them are professionals who can very well see who has "adopted" what from whom, even if it is of good quality. But an original project, particularly something unusual, is an infrequent case at

defense sessions, so one perks up... But at that time I defended my project, I emphasize--defended. And zealously. Kamov said: "You will go to the long-range planning department."

[Question] Today, after nearly 20 years, which qualities of a new machine do you put in the first place, in selecting some or other technical solutions?

[Answer] A promising future. Any project must contain a "spark," which will ensure a long life for a machine. And more. A designer must, he is simply required to take a thoroughly appraised chance. There can be no technical progress without boldness of an idea of a new machine. This is understood by all, but not everyone dares to.

I would like to respond to the question about qualities of a machine with a reflection about those who develop them. I am in love with design work, and cannot stop being surprised at the skill of people in making ultra-complex systems exceptionally economical technical or technological means. But far from everyone is successful in this, just like not every person becomes a musician, singer or man of letters. I am convinced that people having a talent for design work must be selected and specially trained.

We often talk about the necessity of reducing the metal content of our machines and labor intensiveness of their manufacture and of raising technological qualities. The search for these reserves begins at the drawing board, the place where a design is born. Possibly, the most important of reserves lies here, because a poorly planned design, which is then printed in hundreds, thousands of copies, takes away on the basis of completely "legal" grounds our most valuable property--working time.

Promising future, creative daring--these are, so to speak, derivative categories, but in reality everything begins with an idea, at times with a "rebellious" question: And why cannot this be done differently? A talent of an engineer is needed to ask such a question.

[Question] In recalling the rotating wing aircraft Ka-22, such a question was also asked at one time by N. I. Kamov. After all, this machine, which had reached "airplane" speeds, preserved all advantages of a helicopter, but was a hybrid of an airplane and helicopter.

[Answer] Yes, and here is what's interesting. This machine has already passed into history, but the idea which was embodied in it is alive. Incidentally, it is because of the Ka-22 that I wanted to work in the Kamov Experimental Design Bureau. I was very much attracted by the speed qualities of the rotating wing aircraft, which promised to reconcile helicopter specialist with airplane specialist in me. I became an aircraft designer by conviction, but a helicopter specialist by chance. When after the second course of instruction at the MAI [Moscow Aviation Institute imeni Sergo Ordzhonikidze] it became known that our specialization is helicopters, I took this piece of news as a collapse of all hopes... But that's by the way.

In the history of the Experimental Design Bureau there is also another example of design work flexibility, an ability to ask daring questions when needed. In the case of our popular Ka-26 it sounded something as follows: Does a national economic, particularly an agricultural helicopter need gas-turbine engines, even if all winged and rotating wing aircraft are being equipped with them?

It is a matter of the past and I am not going to describe again all of the technical and, for the most part, economic reasons in favor of good piston engines. The important thing is that today, 20 years after its birth, the Ka-26 copes with many tasks in an excellent manner. It is particularly successful with agrochemical work. The machine is being used in 15 countries.

[Question] But wouldn't its time also come to an end sometime?

[Answer] Of course. One should not delude himself here, for there are no solutions for all time. Today, it would be a regression to equip a new machine with a piston engine. Our entire civil aviation with all its services is oriented virtually only toward gas-turbine equipment. By realizing this we are working on a modern descendant of the 26.

[Question] What is it like, this national economic helicopter of the new generation?

[Answer] It will inherit layout solutions from its predecessor. The helicopter will be a multipurpose one as before and it can also be rapidly equipped with any mounted implements. Not to haul, let us say, a passenger compartment on itself at all times as it is done by almost all helicopters in the world, but to install it when necessary. Incidentally, the elimination of such a constant burden results in a 12 percent increase in useful load.

The gas-turbine engine will make it possible to maintain the machine's lifting capacity up to a height of 1,000 m. This characteristic of the power system will also help the helicopter to operate during increased air temperatures in hot climate areas. Not excluding, however, the appearance of a particularly specialized helicopter...

Our Ka-32, which can fly without visible reference points at any time of the day under any weather or climatic conditions, can also be fully regarded as a national economic helicopter. In describing the tests of this machine, which is equipped with a complex of navigation equipment, including an airborne computer, IZVESTIYA has already written: The helicopter has become a reliable assistant to an icebreaker in guiding vessels in the Arctic. In our opinion, the tremendous reserves of rotating wing aircraft lie precisely in the helicopter's "indifference" toward weather.

[Question] Large-tonnage helicopters, airborne computers and gas-turbine engines... How distant all of this is from the first Kamov "dragonflies" with a motorcycle engine which flew so efficiently during Tushino parades in the latter part of the forties. It seemed to many at that time that a little bit more and this massive flying device might be a sort of an airborne version of an automobile. Isn't the long-standing dream to be realized after all?

[Answer] I think that it will not come true in its, so to speak, individual version. This machine, the helicopter, is not that simple, even in the most unpretentious execution. The film taken by a camera, which was installed in a rotor hub, is very instructive. One of the blades, which bends like a whip with the frequency of screw rotation, is constantly visible in the field of its "vision." Being aware of the loads that it absorbs in flight, one realizes that only optimism of ignorance can prompt a man to build a blade by himself.

That is why I would like to warn the enthusiasts who undertake construction of individual helicopters under domestic and crude conditions. Let the people, whom I respect very much for dedication to the idea and self-sacrifice, believe me that they have no chance of creating any reliable construction...

Although not of an "airborne motorcycle," the revival of a light helicopter is completely possible--in the appearance of a mass, simple machine. The need for it became urgent long time ago: there are many cases when a powerful transport helicopter is used for the sake of hauling 200-300 kg of cargo!

[Question] About the enthusiasm, which is traditonally inherent in those who are connected with aviation... There is more than enough of it among amateur designers, and there are many of them. A competitive examination for admittance to technical VUZs, including aviation VUZs, is no longer the same as when you were a student...

[Answer] That is true, it is not the same. The shortcomings in the higher education system have had an effect.

The question about efficiency and prestige of engineers is not a simple one. It is now acquiring particular urgency, since it is closely connected with fundamental acceleration of scientific and technical progress. With great satisfaction I have familiarized myself with the materials of the April plenum of the CPSU Central Committee, which has formulated the conception of accelerating the country's socioeconomic development on the basis of accelerating the rate of scientific and technical progress, and with the materials on the same questions of the conference in the CPSU Central Committee in June. Those urgent measures, which are being worked out by the party and the government and which can open the way for new ideas, machines and technologies and for creatively thinking and acting people, are dear and clear to me. They are indeed the dictates of the time.

[Question] It is not ruled out that the first outlines of the machines which you have described will be made by future designers who are only preparing projects for their degrees. How will you select engineers to the main department of the Experimental Design Bureau--the long-range planning department?

[Answer] Just as Kamov selected people at one time, based on the extraordinary nature of projects for degree and the skill in defending them. Based on the readiness not to be timid before authority.

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CIVIL AVIATION

JOINT SOVIET-ROMANIAN KA-126 HELICOPTER PROJECT

Moscow VOZDUSHNYY TRANSPORT in Russian 8 Aug 85 p 3

[Article by G. Abalov, Novosti Press Agency Special Correspondent, written especially for VOZDUSHNYY TRANSPORT: "The Birth Of A New Vehicle"]

[Text] This vehicle can still be seen only in Moscow in KB [design bureau] blueprints and on work tables in the Brashov aviation enterprise. It is still going through the stage of development where there are meetings with Soviet and Rumanian designers and engineers, the plans and time frames for reciprocal deliveries are being coordinated and technological and initial materials and test parameters are being refined.

One of the leading designers of the new vehicle, Ye. Pak, tells us, "The Ka-126 helicopter will be used extensively in the country's agricultural and forestry industries. Its high maneuverability, ease of control and other design features make it indispensable for various types of work in mountainous and hilly terrain. It will carry out spraying for vegetation and fertilization, will battle field pests and take care of other agricultural worries. One of its modifications is designed to be used in a transport mode and this is especially important for buck bean farming as practiced in remote areas of Siberia.

Several months ago we sent all the aircraft's technical documentation to our Rumanian partners. Delivery of special-order sub-assemblies and components has begun and on-site equipment production is being set up very quickly. Production of the first five experimental vehicles is planned for next year and a group of helicopters is scheduled to be delivered to the Soviet Union in 1987.

One can certainly not say that workers at Brashov are novices in international cooperative ventures. The have amassed a lot of experience in business cooperation in such ventures as the ones with the French in the production of the Puma and Alouette helicopters which were shown at the last air show in Brashov. If you visit the factory you will certainly hear the story about the recent record flight made by a group of powered gliders built by engineers and workers from here. They flew from Brashov to Tokumval, Australia and in two hundred hours of flight time traveled approximately 20,000 kilometers through the steep mountainous slopes of Nepal and through the trade winds of the turbulent south seas without a single breakdown.

The collective's primary concern is the struggle for quality. However, 60 percent of the workers are in their twenties. The efforts of the administration and the party and Komsomol organizations are reinforced by a well-thought out system of material and moral incentives and are supported by a net of training centers that provide professional training and refresher courses for cadre of any rank.

Party organization secretary, master Konstantin Dregoy says, "Indifferent and negligent people are not retained. We either turn an unskilled, but sensible young fellow into a qualified specialist or, as we say around here, "he's given the boot". We spare neither time nor effort in getting them interested in the work or in challenging them."

Yes, neither is spared here. Otherwise the factory banner would not have the Order of Labor 1st Class that was recently awarded for "excellent results and first place in socialist competition among industrial enterprises".

Our guide through the enterprise was the energetic and sociable engineer, Konstantin Kasagranda. He successfully combines the competence of an expert, a love for his native kray and a dedication to aviation all in one person. Almost the same age as the factory, he has gone up the ladder from a worker to the head of large-scale production. At one time young Dumitru Prunariu who later became the first Rumanian cosmonaut and who made a joint flight with Leonid Popov in the Interkosmos program in May 1981 worked under his supervision. The Ka-126 will be created in the workshop headed by K. Kasagranda.

K. Kasagranda says, "We are putting great hopes on the Ka-126. The new Soviet helicopter is a great step forward for our factory. And in the sense of mastering new advance technology and from a point of view of charging up the enterprise for the extended future, the Ka-126 still exists only in blueprints, as the saying goes, in 'raw' form and we along with Soviet specialists will take it to completion. This means that the future holds joint creative work in all phases of installation, production and testing."

12511
CSO: 1829/281

CIVIL AVIATION

DEVELOPMENT OF AIRCRAFT FOR NORTHERN REGIONS URGED

Moscow VOZDUSHNYY TRANSPORT in Russian 18 Jun 85 p 2

[Article by V. Teterin, chief of the LShO (not further identified) Yakutsk Administration, under the rubric "Experience, Problems, Prospects": "The North Needs a Plane"]

[Text] It is impossible to imagine development without aviation of the almost inaccessible areas of the North and provision of the rapidly growing population of the region with all the necessities, beginning with food and ending with construction materials. Thousands of tons of cargo are delivered annually by planes and helicopters to drifting stations.

But as before, like 30 years ago, the most widely used plane is the omnipresent An-2. We, of course, may be proud of such a long-lasting plane of the Aeroflot. But still it must be said that today this machine does not satisfy the national economy for a number of reasons. For the North, to put it mildly, it is rather cold. It does not have a sufficiently reliable heating system. Some other features of this plane can also be mentioned, which, if one may say so, are technologically unfeasible.

But I have used the An-2 as an example of the fact that for a period of several years our aviation equipment has not been improved by taking into consideration those conditions under which it is operated. And what is more, new planes and helicopters are developed without a deep study of the practical experience which has been accumulated by whole generations of pilots. At present, we do not have light and economical multipurpose aircraft suitable for operation in a sharply continental climate of the country's northeast.

After all, development of such machines is a tremendous area for economizing human labor and material and technical resources, first of all, fuel and lubricants. A simple example. Five An-2 aircraft were required for landing people on SP-26 [North Pole-26 Station]. In the process two of them were used as tankers and three carried the payload, with the total number of crew members consisting of 20 people.

But what can be done? After the Li-2 was written off, selective area landing can be done only on an An-2. No other machine appeared which could equally

replace the Li-2. So the single-engine An-2, which is poorly adapted for operations in high latitudes, continues to drag the Arctic expanses.

There is also no replacement as yet for the Il-12 plane, which is used today for the fulfillment of the basic volume of work in transporting cargo to ice floes and islands. The attempts to replace it with An-24 did not yield reassuring results.

I am sure that our designers themselves are thinking about developing machines for the North. But in 20 years of working in Yakutia, I do not recall an instance of a representative of any design bureau visiting us in the administration and listening to our comments and proposals. Moreover, all models of new equipment, which arrive for testing in Yakutia, as a rule, begin flights here in the latter part of February when the freezing temperatures drop to 40 degrees. In spite of the fact that we have to fly during 45 and 55-degrees of frost, in essence, under most harsh conditions.

And, of course, the machines tested during much higher temperatures do not always satisfy us as well.

But development of aircraft for the North is only one aspect of the problem. It is now necessary to solve in combination all questions with regard to operation of aviation equipment under extreme conditions. But for this it is necessary to have compact portable and reliable ground-based navigation equipment, luminous night take-off positions and GSM [fuel and lubricant] containers of light and durable construction which are convenient for hauling over great distances and intended for MVL [local air route] areas. But in order to have all of this done, again it is necessary to place the existing experience in service and to be well aware of pilots' requirements.

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CIVIL AVIATION

EXPERIENCE IN AUTOMATING FLIGHT NAVIGATION FUNCTIONS

Moscow VOZDUSHNYY TRANSPORT in Russian 2 Jul 85 p 2

[Article by G. Kudryavtsev, chief navigator of the Latvian UGA (Administration of Civil Aviation) and merited navigator of the USSR, under the rubric "Effect of Innovation": "Parameters are Selected by Computer"]

[Text] Riga--The idea of developing automated navigation calculations cropped up in the Latvian Administration long ago, when the Riga Institute of Civil Aviation Engineers was planning and developing a unified specialzed USNT-75 navigation trainer (Dvina in industrial version), where an electronic computer was used as software.

It was decided at first to introduce automated calculations for Tu-134 planes on the Riga-Moscow route. Average values of hourly fuel consumption in the rate of climb, descent and level flight were used. But the program had one substantial shortcoming--the unsealing of the navigation plan form took about 12 minutes.

However, by trying to print the calculations data on a specially reproduced navigation plan form, we were able to reduce the process to 2.5 minutes. Then it was more. By using a rapid printing device, we have reduced the time to a minimum: 40-60 seconds. In 1979, this made it possible to provide automated calculations to all types of aircraft used in the Latvian Administration of Civil Aviation: Tu-134, An-24, An-26, Yak-40 and later Tu-154 during the entire extent of a round-trip flight.

Moreover, we have developed a program for calculating the maximum mass of the aircraft Tu-154, Tu-134 and An-24. In which connection the calculation of a flight's safe altitude was conducted for the entire region of flights and the zone of responsibility during air traffic control for various speeds and flight rules.

We have prepared and introduced automated calculation and output of a flight plan form, and as of 1980 began issuing automated form sheets of warnings for the entire extent of a flight.

Initially, automated calculations were prepared by the navigators on duty. However, with such a volume of form information issued it was necessary to organize a special group which would only engage in these calculations.

It was necessary to shift to work in a realistic time scale, that is to prepare calculations directly during the process of a crew's preflight preparations, since wind intensity and altitude temperature would be known more precisely in this case. Moreover, to carry out a precise engineering-navigation calculation, weight data for a specific aircraft and condition of airports of departure and landing with regard to coupling factors for a given moment should be known.

It means that calculations on electronic computers, which are at a distance from work place (navigators' rooms), lose their meaning, since it will be impossible to convey all work performed with regard to calculation and output of form documentation to a departing crew on time.

What is to be done?

It might as well be admitted that pilots were at first afraid of "writing." But time convinces. Automated calculations have served the aim of introducing flights without a navigator, and have occupied a fitting place. A part of the navigator staff had to be reduced. A real possibility then appeared to organize a ground-based navigation support group. We have appealed to the Ministry of Civil Aviation, and our request was granted.

It seemed that everything has worked out well, there were not failures now in the output of calculations and the annual economic effect of R60,000 was fair. But we realized that work in package routine (calculations were made four times a day) and also with an obsolete program can no longer meet contemporary requirements in the matter of raising the accuracy of air navigation and economizing aviation fuel.

Invaluable assistance here was rendered by microelectronic technology. Workers of the TsNII ASU GA [Central Scientific Research Institute of Civil Aviation Automated Control Systems], who undertook to solve the task, have used an Iskra microcomputer as an electronic computer.

This machine is small in size, can be placed on an ordinary twin-pedestal desk, power is supplied from an ordinary 220-volt network and it has a good rapid printing device. For the purpose of raising the accuracy of calculations, a special program was developed which made it possible to conduct calculations by taking into account the actual meteorological conditions in the area of airports of departure and landing, alternate route and flight conditions on the route. The program made it possible to calculate all echelons of a flight in a few seconds and to provide most favorable altitude flight data.

Moreover, it has also made it possible to get calculations for adjusted routes, least costly flight procedures and minimum fuel consumption. The machine recommended quantity M in proportion to the output of fuel per flight level and the fuel-time program took stock of the rate of climb, descent and horizontal flight conditions according to nomograms taken from aircraft RLE [not further identified].

A data bank of turning point coordinates, UVD [air traffic control] lines and radio engineering support, including RSBN [short-range navigation radio navigation system] beacons for correcting the line of flight were entered in the machine's memory. The machine can now provide parameters of any route by employing calculation according to formulas of spherical trigonometry. There is a possibility for entering time for a departure maneuver after take-off and a maneuver for landing approach according to actual schemes. In a word, the calculation of fuel is carried out to tens of kilograms. The annual economic effect from introducing this system has already amounted in our administration alone to R143,000. This is not a limit.

Now about the technology of preflight preparations. There are two officials in our navigator's room: a navigator on duty and a navigator-operator of a special group. After going through preliminary meteorological consultation, a crew comes to the navigator-operator and gives the number of the flight and the side number of the plane. An aircraft payload data comes here via its own channels. Calculation is conducted in the presence of a crew. A trip standard can be studied in detail on a visual display. If the calculation is carried out on the eve of a flight, a printed form of a preliminary plan is provided.

As of January this year, automated calculations for all trips and for the entire extent of a round-trip flight are conducted on an Iskra-226 microcomputer in our administration. This has made it possible to achieve considerable saving of fuel.

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CIVIL AVIATION

AEROFLOT-AIR FRANCE TALKS ON TRANSSIBERIAN ROUTES

Moscow VOZDUSHNYY TRANSPORT in Russian 15 Jun 85 p 3

[Article: "The Negotiations Have Been Completed"]

[Text] Negotiations between delegations of the USSR Ministry of Civil Aviation and France's Ministry of Transport completed in Moscow on 14 June their negotiations on the matter of operation of the Transsiberian Air Route.

As a result of the negotiations, which occurred in a spirit of mutual understanding, a joint document was signed which called for further expansion in the collaboration between Aeroflot and Air France in aerial hauling between Europe and Japan. The document was signed by the Deputy Chief of MGA [Ministry of Civil Aviation] Foreign Relations Administration G. Mirzoyan and, on the French side, by R. Esper, Director of Aerial Transport Service of the General Directorate of Civil Aviation.

An agreement was reached to increase the frequency of flights by aircraft of Aeroflot and the French national airline company, Air France, on the Transsiberian air route from Paris to Tokyo. In accordance with the agreement reached, Aeroflot will be able to increase the frequency of its flights to Tokyo from 1½ to 4 per week. In turn, Air France received the right also to carry out on the Transsiberian route up to 4 flights per week on wide-bodied Boeing-747 airliners.

A new and significant step in collaboration between the airline companies is the fact that Air France can carry out some of these flights from Paris to Tokyo and return without landing in Moscow. Let us note that this is the world's second aviation company (after Japan's JAL), to receive the right to make nonstop flights over the Transsiberian route--the shortest and most economical air route from Europe to Japan.

The agreement also specifies that Aeroflot Il-76 cargo aircraft, which now make regular flights on the Moscow-Paris-Moscow run once each 2 weeks, will fly weekly, beginning in the summer of next year.

Moreover, the agreement recorded concurrence on a number of questions of commercial collaboration between Aeroflot and Air France.

The document that was signed undoubtedly will help to expand the mutually advantageous relationships between the two aviation companies in the operation of the Transsiberian route.

It should be noted, in this connection, that collaboration between Aeroflot and Air France has been marked for many years by a traditionally stable relationship. The guiding principles of this collaboration have been stability of businesslike relationships, equality and mutual advantage. It is significant that Soviet-French relationships in the area of air transport have always conformed with the spirit of interstate relations between the two countries.

11409
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CIVIL AVIATION

COLLEGIUM CRITICAL OF 'FLIGHT WORK QUALITY'

Moscow VOZDUSHNYY TRANSPORT in Russian 29 Jun 85 p 2

[Article: "In the MGA Collegium"]

[Text] The MGA [Ministry of Civil Aviation] Collegium, under the chairmanship of Minister of Civil Aviation B. P. Bugayev, examined the question of the status of the quality of flight operations and of measures for raising it, in light of the party's and the government's requirements.

As was noted at the meeting, the branch is working on further development of the supply and equipment base, improvement of vocational training, and strengthening the discipline of aviation specialists. Most flying subunits are fulfilling established plans and are providing for high effectiveness and quality of flights.

At the same time, some subunits, particularly West Siberian, Krasnoyarsk, Ukrainian, Kazakh, Armenian, Belorussian and Far Eastern subunits, because of poor exactingness and monitoring on the part of command and managerial personnel and an inadequate level of political indoctrination work by various specialists of the flying, controller, engineering-and-technical, and ground services, are permitting violations of performance discipline in meeting the requirements of standardizing documents. Formalism still has not been completely overcome in eliminating deficiencies that affect flight-work quality adversely which were discovered by MGA and Gosaviaadzor [Flight Safety of Civil Aviation Commission] commissions. There have been cases of violations of operating technologies and official instructions, even among a portion of dispatcher personnel and flight supervisors. Cases of damage to aircraft while being serviced on the ground still have not been eliminated.

The MGA Collegium meeting called attention also to the fact that scientific-research organizations of Minaviaprom [Ministry of Aviation Industry], GosNII GA [State Scientific-Research Institute for Civil Aviation] and NETs AUVD [Scientific Experimentation Center for Civil Aviation Air Traffic Control Automation] are not doing the required amount of work on studying the influence of the human factor in raising the quality of flights and on improving the ergonomic requirements for equipment and configuration of the pilots' cabins. Strict exactingness is not always imposed on the industry, and the proper level of scientific and technical follow-up on the part of GlavNTU

[Scientific and Technical MA] and GlavUREO [Radio Electronic Equipment MA] MGA, GosNII GA, and NETs AUVD and GUZSANT [Air and Ground Production Equipment Orders MA] MGA is not fully provided during the conduct of state and operational tests of aviation equipment. MGA administrations (ULS [Flight Service Administration], GUERAT [Operation and Repair of Aviation Technical Equipment MA], UNS [Ground Structures Administration], UKS [Capital Construction Administration] and GUARP [Aviation Work and Transport Operations MA], TsUVD [Air Traffic Control Central Administration] and TsUERTOS [Operation of Radio Technical Equipment and Communications Central Administration) CA do not take effective measures to eliminate existing deficiencies in the activity of subordinate aviation enterprises. The MGA inspectorate still poorly monitors the irreproachable fulfillment of standardizing documents. In the drive to raise the level of flight work and to strengthen discipline, the social organizations of aviation enterprises still are not using adequately the Law of Labor Collectives and the educational role of socialist competition.

The MGA Collegium adopted a resolution aimed at providing for unconditional fulfillment of party and government requirements for raising flying-work quality. Deputy ministers of civil aviation, chiefs of MGA administrations, operational administrations, and the branch's enterprises, organizations and institutions have been charged with increasing the vigor of the activity of command and supervisory personnel and of social organizations in the matter of increasing the responsibility of specialists for the assigned tasks and strengthening work discipline, in light of the requirements of the April 1985 CPSU Central Committee Plenum and the CPSU Central Committee Conference on Questions of Accelerating Scientific and Technical Progress. A number of other organizational and technical measures also were planned.

The CPSU Central Committee Conference on Questions of Accelerating Scientific and Technical Progress emphasized that the main reserves for getting better efficiency lies at the branch's interfaces. This thought was reflected also in the resolution of the MGA Collegium, which noted that successful realization of the task of further raising flight-work quality, in the spheres of both science and technology, depends greatly upon close mutual actions of related branches of the national economy.

Taking part in the MGA Collegium's work were the Deputy Chairman of the USSR Council of Ministers L. V. Smirnov, CPSU Central Committee section manager N. I. Savinkin, Minister of Aviation Industry I. S. Silayev, USSR First Deputy General Prosecutor N. A. Bazhenov, responsible workers of the CPSU Central Committee, the USSR Council of Ministers, Union-republic Communist Party central committees and kray and oblast CPSU committees, general and chief aviation designers, chief of MGA administrations and regional civil-aviation administrations, their deputies for organizing flight work and their chief engineers, and supervisors of the branch's training institutions.

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CIVIL AVIATION

AN-32 TEST BED FOR ADVANCED PROPELLER TECHNOLOGY

Moscow IZVESTIYA in Russian 12 Jul 85 pp 1, 6

[Article by V. Belikov: "Greetings, Airplane Propeller!"]

> [Text] The airplane was just like an airplane--it flew properly, set down confidently on landing and taxied briskly about the airport. But its look had some sort of peculiarity that distinguished this two-engined An-32 from its winged brothers. And only when the aircraft came to a standstill on a hardstand and its turbines fell silent did I see that it had two different kinds of propellers.

The screw, or propeller, which was invented by Archimedes and has served man for more than 2,000 years on land, on the sea and in the air raised the first airplane into the air at the start of our century. For almost four decades the propeller reigned in aviation, before the turbojet era set in. Comparatively light and powerful, these engines have enabled flights of thousands of kilometers with hundreds of passengers aboard to be made.

But these indisputable advantages had to be paid for in large fuel consumption--turbojet aviation needed fuel intensively. In order to reduce this insatiable appetite, more economical and less noisy turbofan engines were created in the 1960's,the development and improvement of which continues without interruption.

It was precisely these gas-turbine power units that have been mounted on Aeroflot's most modern aircraft. The latest innovation, the giant An-124, also is equipped with engines of this type.

And what about propeller aviation, was it supplanted and forgotten? No, it has always continued to remain in the sky. In the second half of the 1950's power plants with turboprop engines were created for the Il-18 and An-24 passenger liners, the An-22 cargo aircraft and others. However, these economical machines could not reach speeds as high as those of jet aviation, and their greater noise drew passenger criticism.

In the 1970's the rise in fuel prices stimulated work on creating qualitatively new power plants which exceeded considerably today's turbofan engines in their economy. It was necessary to recall again the highly economical propeller engine, but to return to it on a new technical level.

The efforts of scientists and designers gave birth to a multiple-bladed propeller which changed its ordinary appearance. It became similar now to the daisy, with its wide petals bent at the ends.

This propeller, which has been named the fan propeller, reduces fuel consumption 20-30 percent below that of existing aviation engines when it is combined with the modern gas turbine. It will allow flying speeds of 800-900 km/hr and provide the comfort required for the pilot and passengers.

"The An-32 winged laboratory," it was explained to me at the design bureau, "enabled the modified propelling device to be tested under realistic flight conditions. An enormous amount of design and engineering studies and laboratory research in aerodynamics, materials technology and strength of materials in the KB [design bureau] itself and at the branch's scientific-research institutes preceded the start of flight tests of the unusual propeller."

...I examined with interest the highly promising "firstling," which had been fitted confidently to the An-32's left wing. The aircraft had just returned from a routine test flight.

The pilot's first impressions:

"No difficulties of any kind came up during the flight. The fan propeller works and performs all the required functions. On the ground it pulls better than the serially produced propeller, and that means that less takeoff run is required for the craft. There is much less noise and vibration from it than from an ordinary propeller...."

For high-powered power plants, the developers have adopted, for example, the so-called coaxial scheme, wherein as many as two counterrotating fan propellers are mounted on one shaft. This solution, besides reducing the diameter and eliminating reactive torque on the wing, yields an additional fuel saving.

Because of the large number of blades and the complicated shape with the saber-shaped bend and thin profile, it proved to be impossible to realize the product in the traditional aluminum alloy. Composites--reinforced plastic, based upon glass, carbon and organic fibers--came to the rescue.

I managed to hold one of the blades--it seemed to be no heavier than a fisherman's oar. Made of aluminum, it would "pull" 3-fold as much.

The first full-scale coaxial fan propeller, which was demonstrated in the Soviet pavilion at the last Paris aerospace show, attracted the attention of foreign specialists among the exhibits.

Everyone assessed its appearance at the international review of innovations as the first sign that we shall in the near future see passenger and transport aircraft with fan-propeller engines. Meanwhile, designers and scientists continue to work to solve all the problems that still remain before them before the start of series production.

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CIVIL AVIATION

VLADIVOSTOK AIRPORT IMPROVED TO HANDLE LONG-RANGE IL-62'S

Moscow VOZDUSHNYY TRANSPORT in Russian 2 Jul 85 p 3

[Article by S. Glukhov and Yu. Ostapenko: "Clear Il-62 for Landing, Vladivostok!"]

[Text] The Il-62 aircraft that took off the afternoon of 29 June from the Domodedovo runway was no different from its flying brothers leaving that day for far-off regions. But the Il-62M had in store for it a distant journey: 7 thousand kilometers, clear to the very "edge of the earth"--to Vladivostok, where it was awaited with special impatience. This was the first regular nonstop passenger flight from the capital to the distant regional center.

The people on the coast worked very hard indeed to prepare to welcome the Il-62. The airport's reconstruction, which included building a new take-off and landing strip, was completed with dispatch by the people of Vladivostok for the 125th anniversary of their home city.

"The initiation of the nonstop flight to Vladivostok," said Far East Civil Aviation Administration Chief V. Nacharov, "not only makes it possible for the people of Vladivostok to fly straight to the capital (and in the future they will fly direct to other cities of the country's center and to health resorts) and at the same time to save 2 - 3 hours' travel; it makes it possible to a considerable degree to relieve the Khabarovsk airport, where flight "link-ups" have up to now taken place. All things considered, this is an improvement in the level of service for the people of both regional centers--which was our main goal."

In 8 hours 10 minutes Crew Commander L. Akshentsev landed the Il-62 at the port of destination.

Builders, aviators, passengers and everyone at the airport during those moments watched with joy and excitement as the Il-62 rolled up to the ramp. There were congratulations, handshakes and embraces. It was a rally.

Words cannot convey the joy or the mood of the people who had invested their labor in seeing that the city would win its airstrip for the anniversary celebration. But it was worth looking at the faces of V. Sayapin, the airport's deputy head engineer, B. Nikitin, senior engineer for the ERTOS

[expansion unknown] base, and V. Bezlepkin, ESTOP [expansion unkown] service chief, or at the pinched but joyful face of Airport Commander A. Shergun, to understand how much the landing strip was needed and how difficult it was to put it into operation on time and with such excellent results in quality.

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CIVIL AVIATION

IL-86 MOSCOW--SUKHUMI SERVICE INITIATED

Tbilisi ZARYA VOSTOKA in Russian 5 Jul 85 p 4

[Article by Gogi Patsatsiya, deputy commander of Sukhumi airport, under the rubric "The Fact in Close-up": "Airliner over Sukhumi"]

[Text] Since the first of July an Il-86 airliner has been making regular flights from Moscow to Sukhumi and back.

This multi-ton air vehicle withstood its experimental flight very well indeed, and, thanks to the highly skilled handling of its crew, landed at the Sukhumi airport. The wide-fuselage airliner transported its first passengers to health resorts on the Black Sea coast. They were pleased with their trip, with the comfort and convenience, and with the pleasant service in all three cabins of the air vehicle.

In the third quarter of this year, the airliner will run between Leningrad and Sukhumi. For the initiation of the airliner's operation, the take-off and landing strip was rebuilt. The new airliner takes on board twice the number of passengers that the Tu-154 boards, and as a consequence considerably increases the flow of air passengers to Sukhumi. This makes it imperative that we furnish the Sukhumi airport with modern ramp equipment, that we mechanize many of the baggage and freight handling operations and perfect the procedure for serving passengers. The airport's engineering-technical and dispatching staffs are actively improving their skills at present in order to provide efficient and high-quality service to visitors.

With the beginning of regular airliner flights, a two-story building has been opened in the Sukhumi airport, in which ticket counters, passenger registration desks, a baggage claim area, a luggage checkroom, waiting and resting rooms, and consumer services are located. The service capacity of the new facility is more than 600 air passengers per hour.

The people of Sukhumi greet their visitors with a big "welcome"!

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CIVIL AVIATION

IMPROVEMENTS IN AIRCRAFT REPAIR QUALITY CONTROL

Moscow VOZDUSHNYY TRANSPORT in Russian 2 Jul 85 p 2

[Article by Engineer I. Pestova, Moscow, under the rubric: "Patent VT [VOZDUSHNYY TRANSPORT]": "Prolonging Aircraft 'Life'"]

[Text] At Civil Aviation Plant No. 400, in close cooperation with OKB [Experimental Design Bureau] imeni A. Tupolev and workers of the GosNII GA [State Scientific Research Institute of Civil Aviation], extensive scientific work is being conducted within the framework of an integrated system of quality control for aircraft equipment repair (KSU-KRAT). In it are incorporated a complex of control and recording devices which monitor the basic work parameters of equipment and machines in the aircraft. The depth of analysis that has been achieved with its help and with additional checking by systems on the ground, enable us to shorten the time of test flights by 1.5 - 2 hours and to raise the objectivity of repair quality. Use of this complex has brought a double advantage: a high machine reliability and a savings for the plant of 181 thousand rubles.

Process engineers have made a great contribution to the work of improving repair quality. They suggested additional chrome plating to strengthen the flap rails, which extended their service term and increased the dependability of wing mechanization work.

Plant engineers have solved another difficult problem. They have worked out a technology for restoring and utilizing almost 600 repair items. All the innovations applied during repair work are tested on aircraft especially earmarked for monitoring operations and for further study of their technical condition. As a result it has been possible to extend the inter-repair operating life of the Tu-154 aircraft.

This work, begun during the present five-year plan, will be continued during the next one.

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MOTOR VEHICLES AND HIGHWAYS

AUTOMATED LINE FOR 'AVTOZIL' ENGINE PRODUCTION

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 14 May 85 p 1

[Article by V. Shvorina: "The Laser in the Service of Reliability"]

[Text] Moscow--The first automatic line in our country for laser thermal hardening of parts has been turned over for experimental industrial operation in the engine section of the AvtoZIL Production Association main plant.

Having gone through a whole series of operations, the now practically ready cylinder block head is moving toward the new laser thermal hardening section. This is a two-story compact structure in whose upper level four laser devices are conveniently located. The laser is turned on. A powerful beam hits the surface of the metal....

"Laser technology is being successfully introduced into all of the country's large motor-vehicle plants," says the director of the automotive industry's Scientific-Research Institute of Technology S. Podsoblyayev. "The national economy benefits colossally: spare-part output is sharply reduced, a large amount of metal is saved and the standard of production is raised. And this creates the possibility of additional shipments of millions of tons of freight.

"Due to lasers it is possible to produce surfaces whose resistance to wear has been increased twofold, to weld those parts [illegible]e connection was never before thought possible and to cut superhard and soft materials with hitherto unttainable precision and speed."

At the sector's plants there are now about 50 lasers of various types in operation. In the next five-year period, it is planned to expand both the geography and the sphere of application of laser equipment and technology. The light ray will cut patterns, facing materials, plywood and plastics, will pierce openings, alloy metals, weld and harden motor-vehicle units and parts and punching and cutting tools. For example, it is proposed to introduce 100 devices similar to those that have gone into operation at ZIL [Motor Vehicle Plant imeni I.A. Likhachev].

"Quite recently the connectors between the internal-combustion chambers of the cylinder block were the Achilles heel of the might organism of our ZIL car," relates the association's deputy chief engineer V. Kalner. "Under the influence of high temperature, they rather quickly burned out, incapacitating the engine."

The staff workers of ZIL's central electron-beam and laser-treatment laboratory were joined by specialists of the Scientific-Research Institute of Technology of the Automative Industry, Electronika Central Scientific-Research Institute, Moscow State University and the Scientific-Research Center for Technological Lasers of the USSR Academy of Sciences. They tried to subject the interchamber connectors to local treatment with a light beam. The experiments provided hopeful results: the strength of the connectors more than doubled. Following refinement of the technology, bench and road tests, the effect was confirmed--the life of the parts treated with the beam of the optic generator increased by a factor of 2-2.5.

The work shift is at its height. The finished part is moving toward the thermal hardening section. The laser is turned on. A light ray hits the surface of the metal. It hits a 0.7-0.8-millimeter thick layer, forming an alloy of highly strong structure.

The new ZIL's in whose bosom a more reliable and longer-lived heart is beating are already being driven on the roads of the country.

The economic effect of introducing the laser thermal-treatment automatic line will amount to about 2 million rubles.

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MOTOR VEHICLES AND HIGHWAYS

AUTOMATED LINES AT ZIL'S YARTSEV WORKS

Moscow GUDOK in Russian 18 Jun 85 p 4

[Article by I. Nikolaychuk: "ZIL's Diesel Complex"]

[Text] Yartsev--The ZIL Production Association, fulfilling the decisions of the 26th CPSU Congress on acceleration of the development of production of diesel-engine trucks, is building a large industrial complex in the city of Yartsev in Smolensk Oblast. It consists of two plants--a casting and a diesel-engine plant. The installation of automatic lines has started at the former.

The main body of the iron-foundry plant had risen to its full height of more than 20 meters. Against a background of the pine forest's green, the snow-white panels of the walls and the glass of the high windows shone brightly in the sun. Many interesting innovations were introduced in the construction of this plant, which on reaching its projected capacity will become one of the largest iron-production facilities in Europe. Many of them were employed for the first time in domestic practice.

I recall the beginning of the installation of the main building. Then Valentin Vasilyevich Kravtsov, the chief engineer of Stalkonstruktsiya Trust of the USSR Ministry of Installation and Special Construction Work, carefully analyzed the situation and gave his custodial opinion.

"We are working quite well. But still it is necessary for engineers, workers... everyone to think! Time is pressing. Why was the Kama Motor-Vehicle Plant qbuilt quickly? First of all because of the use of the conveyor-block method of installing roofing. That is it was installed not of individual components but of tremendous blocks assembled below. But even there the roofing of the casting plant was assembled above part by part, whereas the design of the spans and underground structures did not permit the

use of large-block installation for the entire building. Right now we simply have to introduce such a method. Without it we could not keep to the rigid schedules..."

The creative efforts of the trust's collective of engineers and installation workers produced surprisingly simple and intelligent solutions. The innovators developed a new lifting mechanism which made it possible to install blocks of more than 300 square meters and a weight of 30-40 tons for the entire width of the building. The introduction of the innovation made it possible to significantly boost labor productivity and to successfully erect the framework of the building.

The installation of bin trestles in the core and molding shops promised to be difficult and laborious. For their installation, brigades of Yartsev Construction and Installation Administration of Stalkonstruktsiya Trust had to put together at a height of 15-20 meters about 6,000 tons of assembled metal sections.

"The work production plan required piece-by-piece assembly," chief engineer of the construction and installation administration A. Lysenko explained to me. "But we lacked the manpower and the time for lifting each individual beam and each sheet with the aid of a hoist. We decided to do it differently."

Aleksandr Leonidovich led me to a bins being built at the molding shop. The eye was immediately struck by a large, bulky steel pyramid-shaped device.

"We are preparing it for the installation of the next bin," N. Sorokin, the brigade leader of installation workers, eagerly explained. "Our efficiency experts did themselves proud in thinking this up. On the basis of their technology, we assembled below all 120 of the bin's metal sections. They got them to us with three hoists of the crane through the opening in the ceiling and welded three blocks into one, which we will now install."

Prior to this, the brigade raised such a block up to the ceiling with the aid of a powerful, specially developed mechanism in no more than a quarter of an hour. In the course of three shifts, they secured and installed it on the rack. In order to assemble such a bin completely at an elevation, more than one week would have been required.

At this time, the steel installation people at the casting unit, as they say, are entering the final stretch. They are presenting an increasingly broad front of work for the subcontractors--the machine-installation people. The fact is that specialists from Tsentrotekhmontyazh Trust of the USSR Ministry of Installation and Special Construction Work have to set up here in a short time 1,500 units of technological equipment and about 150 kilometers of technological piping. The first castings are planned to be produced next year.

The steel-installation workers are also in a hurry to leave the casting unit as soon as possible because in the immediate days ahead they have to begin work on a very broad front at the diesel-engine plant.

"In the main building of the diesel-engine plant, we have to set up in the shortest possible time more than 20,000 tons of metal sections and many thousands of cubic meters of reinforced concrete," G. Koblikov, the chief of Yartsev Construction and Installation Administration of Stalkonstruktsiya Trust, said. "We are relying, as in the construction of the casting unit, on large unit installation."

The first section of the new complex will make it possible to produce many thousands of diesel engines a year. The conversion of ZIL vehicles to diesel engines will provide a tremendous economic effect. The cheaper fuel compared to gasoline will save many millions of rubles. The increase of the capacity of the new auto giants will release thousands of drivers.

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MOTOR VEHICLES AND HIGHWAYS

MOTOR-VEHICLE REPAIR PLANT STATE OF DISREPAIR NOTED

Kiev RABOCHAYA GAZETA in Russian 13 Jun 85 p 2

[Article by V. Yepifantsev, RABOCHAYA GAZETA special correspondent: "A Tight Knot--How Many Years Must One Wait for Modernization at the Zaporozhye Motor Vehicle Repair Plant"]

[Text] P. P. Mironenko, the new director of the Zaporozhye Motor Vehicle Repair Plant, inherited a difficult legacy. His predecessor did not overburden himself with operational concerns, for which reason the enterprise, which even previously had not been overblessed with production successes, descended another rung. But, for the most part, the people at the plant are competent and eager to do the work. This means that with able management some things could be corrected.

But, unfortunately, far from everything. The enterprise is full of problems which the collective itself is unable to eliminate. And without their solution, there is no way of thinking of serious changes for the better. Here are a few lines from the document hiring P. P. Mironenko: "At the present time the enterprise lacks space for setting up a section for disassembly and external washing of units coming in for repair, housing space for storing items for repair and finished production. The areas where the forging, thermal, welding and hard-facing sections are need to be modernized." Incidentally, such statements were also in the document when the plant hired the previous director. Thus, as we see, the cart is still there, only the load on it is now getting bigger.

Incidentally, in looking at the history of the enterprise, it is not difficult to become convinced that this is a sorry pattern. For three and a half decades, the enterprise has belonged to various subdivisions, with its specialization being changed accordingly. Only one thing remains as before--the plant has remained a stepchild all this time. Practically nothing is being done for its reequipment. Although there have been many good intentions. Its modernization was planned several times, and each time

planned documentation was prepared. But there the matter always ended. The plans went into the waste basket and the collective continued to work in the a old way.

True, in the last 10 years, when the enterprise was turned over to the sixth Kiev production association, they at least started to renew the machine-tool park. But again very slowly--the association is allotted machine tools sparingly, as if to "fill in the gaps." Consequently more than 70 percent of the metal-cutting equipment at the plant has been in operation more than 20 years. We are convinced that this is well known to the top personnel of the UkSSR Ministry of Motor Transport Ukravtoremont republic industrial association. But it is not enogh to know--effective measures need to be taken.

Right now, talks are again in progress on modernization and repair of damaged buildings and structures (that's how bad things have gotten!). But they only elicit a distrustful smile among many workers--they say, it is not the first time they have been treated with empty promises. And there are many reasons for the pessimism. The UkSSR Gosstroy Scientific-Research Institute of Construction Structures even worked out technical documentation for repair of the damage to the buildings for assembly of units. It was turned over to the Avtoremstroytrest repair and construction administration--the contractor, where it has been collecting dust to this day. It is now summer, the most convenient time for repair work, but the construction people still have not shown their faces at the facilities. Their lack of hurry is amazing. It could lead to even greater troubles.

This year Gorlovka planners are scheduled to provide documentation for the modernization of the section for repair of units and storage of finished production. This means it is already time to decide on the contractors and suppliers of construction components. But, alas, these questions have still not been discussed. And such an abbreviated variant of enterprise reequipment satisfies no one. "...The need is not just for any renewal of production," it was emphasized at the conference at the CPSU Central Committee, "but only for the kind that is accompanied by the introduction of the most advanced equipment and provides the highest economic and social effect."

This, if one may call it so, is the technology today of engine repair at the enterprise. Inasmuch as there is no special area for preliminary washing and receiving of items to be repaired, dirty units go directly to the disassembly section where there is no room to turn. The washing machine operates poorly--many parts have to be additionally washed by hand. Flow repair of units has not been organized--again because of lack of space. Assembly is carried out by means of an archaic method--a single individual assembles the engine from beginning to end. One cannot talk of high labor productivity under such conditions. And of quality as well--the technical control department does not exercise operative control over the work.

During the test-run, where the assembled engines are sent, it is practically impossible to detect all the defects. In the close quarters of the testing station there is not even ventilation. And if several units are put to "hot" tests at the same time, you can't breathe for the smoke. There can be no

control under such conditions. Furthermore, the engines are tested without a load because all the testing stands are out of order. So you get a semifinished product instead of a ready unit.

Conditions differ little for other components of motor vehicles--transmission gear boxes, front and rear axles, steering wheels, shafts. Furthermore, after the repair work, all this is put together under the open sky--there is no room. Is it surprising then that many customers are dissatisfied with the time and quality of the work of the Zaporozhye motor vehicle repair workers?

The situation is made more difficult by the fact that it is necessary to recondition components of the most diverse brands of motor vehicles--from modern Volgas to ZIL-157's and ZIL-164's long removed from production. Parts for them are always in short supply, which means that the plant's plan is under constant threat of nonfulfillment. There is no need, of course, to repair the old machines. But something else is clear--the enterprise's specialization would even now help to solve many urgent questions. It would be easier if the technology was "adjusted" and the close quarters were to be used more efficiently. At this time, almost all the units of the widely used ZIL-130 are being overhauled. Thus a basis for specialization does exist. The only thing lacking is a correct and thoroughly considered decision by Ukravtoremont association.

Without diminishing the objective difficulties, we have to, however, point out that the enterprise's collective is now working somewhat indifferently. While, let us say, cleanliness and order exist in the section for repair of units headed by V.A. Kholodov, in some other sections, these norms are not being observed. What else but slovenliness and irresponsibility can explain the fact that unwashed parts are brought in for repair and even paint is sometimes applied on a dirty surface? Pick at it and it chips off.

As we see, a tight knot of problems has been formed at the Zaporozhye motor vehicle repair facility. This has been dragging on for years, and it is necessary to resolve it effectively. Jointly. Both by the enterprise's new director, its senior workers and the heads of the Ukravtoremont association as well.

7697
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MOTOR VEHICLES AND HIGHWAYS

VEHICLES DESIGNED FOR CENTRAL ASIAN CLIMATE PROPOSED

Tashkent EKONOMIKA I ZHIZN in Russian No 5, May 85 pp 38-40

[Article by Professor L. Akhmetov, general director of the Uzbek Automobile Transport Equipment Science and Production Association, doctor of economic sciences: "Speed, Reliability, Comfort: On the Way to the Creation of a "Southern" Variant of Automobiles"]

> [Text] A shortcoming of all Soviet-made automobiles is the lack of adaptability of the basic systems, components and parts to the specific natural and climatic conditions of Central Asia.
>
> Until the present time, mass-produced automobiles oriented for temperate regions have been operated throughout all of Central Asia. This is, as they say, the golden mean and an averaged variant. But it is clear that one and the same automobile may be excellent for Central Russia but behave in an entirely different manner in the extreme North or Central Asia. This has convinced us of the need not only to make substantial changes to existing automobiles but to adapt them to different climatic conditions and create a completely new type of automobile, the so-called "southern" variant.

For passengers, it is always important that a bus be roomy. On city bus routes, passengers prefer "express" buses to "simple" ones and on intercity routes, they prefer "soft" buses to "hard" ones. Passengers seldom notice the brand of bus and very few know that buses, both old and new, are constantly studied in detail by hundreds of specialists interested in improving them.

Design bureaus and manufacturers have developed and are introducing measures for a complex of technological and organizational problems that cannot be resolved without full data on the level of reliability attained by automobiles under real operating conditions in the various regions and climatic zones of the USSR. To gather this information, they designated certain automotive transport enterprises at which they then established sections (laboratories) of automotive transport scientific-research divisions which observe the operation of automobiles and provide information about the reliability of their moving parts.

In order to solve these problems in Central Asia, the Ministry of Transportation of the Uzbek Soviet Socialist Republic has created at Uzavtranstekhnika [the Uzbek Automobile Transport Equipment Science and Production Association] a division for automobile testing and experimental operation. The testing of mass-produced LiAZ-677, LAZ-695 and 4202, Ikarus-260 and 280, PAZ-672 automobiles and RAF-2203 minibuses is being conducted at automotive and transportation support in Tashkent.

Manufacturers, scientific research institutes and design bureaus of the USSR Ministry of Automobile Industries have been receiving operative information on defects and malfunctions, recommendations on how these can be eliminated and on preventive maintenance. In turn, the manufacturers are providing information about all changes made to automobile designs.

Only recently, the recommendations of Uzavtranstekhnika were used to make the following changes to the LiAZ-677 bus. The structure of the rear chassis was reinforced, the speedometer design was changed and the hermetic parts at the joint between the side walls and roof were replaced. The pedal-driven windshield wiper was replaced with an electrical one and higher-quality 7313A bearings were introduced. On the PAZ-672 bus, windshield wipers have been replaced with windshield cleaners and the design of the heater shutter valve has been improved. A signal has been introduced that alerts the driver of any malfunctioned in the brake system. The wall and roof panels are made of wood-fiber sheets. On LAZ buses, forced ventilation and an improved fuel flash check valve has been introduced. In the RAF-2203 minibus, the radiator fins have been improved along with the manual brake. The front chassis and suspension springs have been reinforced. There has also been added a closed system for crankcase ventilation and an emergency brake signal, etc.

This article concerns automobiles that have been used on city roads for years. They are being continually improved.

New and improved automobiles such as the large LiAZ-5256 city bus, the LAZ-5255 tourist bus and the average capacity LAZ-4202 diesel-powered city bus are coming to replace the "old guys". The much-used PAZ-672 is being replaced by the PAZ-3205 with the more powerful ZMZ-672-11 motor. This bus is equipped with shock-absorbing bumpers and shockproof steering column.

New models of buses are equipped with more economical and low-toxic KamAZ-740 and 7402 motors, side-mounted to increase cabin comfort. They also include mechanical transmissions and reliable brakes and the seating capacity area has been increased by 0.25 square meter per passenger while the noise level in the cabin has been substantially reduced (for example, in the LAZ-4202, the level is as much as 70-80 decibels. For comparison, the noise level in the presently-used LiAZ-677 is as much as 85-88 decibels). The expected service life before any major overhaul is needed has been increased to 500,000 kilometers (from 330,000-350,000). These new models have power steering, low-profile radial tires, a brake system with automatic regulation of the gap between the brake shoe and drum, spring batteries [pruzhinnye akkumulyatory] and hydraulic moderators in the brake systems, forced ventilation and a fluid heating system.

It would be rightful to assume that most if not all of the defects in the new buses have been eliminated. These buses embody all that is better and newer and they should be perfect. However, not everything that is wished for comes true or is quickly accomplished.

People in Tashkent were immediately pleased by the look and contemporary shape of the passenger compartment and the smooth ride of the LAZ-4202 on city streets.

The operating defects and malfunctions encountered under real operating conditions have made automobiles spend an above-normal amount of time in repair and overhaul and this has in turn been responsible for considerable costs to automobile maintenance plants. Therefore, much depends on automobile manufacturers and the extent to which they can eliminate these defects.

Up to now, we have talked about design and technological defects. Many defects are also caused by improper operation and this is not the designers' or manufacturers' fault but our own.

Bus reliability is lowered by overloading and poor maintenance. The frequency of maintenance work in automobile repair shops exceeds the average by 20-30 percent. Analysis of the work done by preparation garages AP [not further identified] Nos. 2 and 7 has shown that the setting-up of buses with diesel engines (LAZ-4202, Ikarus) is done practically "from the wheels" and the fuel settling time amounts to a total of 2-3 hours (80-100 times less than the average!). Instead of the lubricants suggested by the manufacturers, other brands are used that do not meet technical requirements.

What is to be done?

We must improve the organization and control of technical maintenance, overhaul work and improve operating practices and cultivate in drivers a feeling of concern for their equipment. And finally, to correct the preparation and set-up of vehicles, we must use diesel fuel that has been settled according to the proper norms and lubricants and fluids that are viscous enough at high temperatures.

The shortcomings mentioned above can take place at various automobile plants regardless of region and the economic losses caused by them are nearly the same everywhere. Automobile enterprises lose much to technical imperfections or unsatisfactory condition of automobiles. Equipment breakdown and failures disrupt the entire transportation system. Working buses must take on the extra passengers left by the bus taken out of service for repairs. This causes overloading, loss of payment for transit, etc.

We must also remember the effects that climatic conditions have on automobiles.

Study of automobile performance in Uzbekistan were conducted by Uzavtotranstekhnika and showed that a complex of factors of a hot, dry climate (high temperature, intense solar radiation and dust) is especially wearing on engines, fuel and cooling systems, electrical equipment and transmissions.

The largest number of malfunctions occurred in the brake system (for example, 62 percent in the PAZ-672). The main malfunctions were wear and loss of friction in brake linings and wear of brake drums.

During summers, which as we know are quite long in Uzbekistan, the efficiency of the cooling system is sharply reduced. This is because radiators become fouled by dust and sand, water hardness is increased by scales inside the radiator and on the surface of cylinder sleeves. During operation, the radiator core is damaged and peels off as flakes which clog the radiator tubes thus reducing their flow sections. At outside air temperatures of 40° C, the the motor temperature rises to 60-70°, water temperature goes up to 120° and the oil temperature to 115°. An engine operating at such high temperatures can have serious problems: the connecting rod and root liners break down, the exhaust valves and valve seats are burned up, the engine block cracks, the cylinders overheat and the cylinder sleeves become contaminated.

High air temperature and solar radiation cause overheating of electrical elements and systems and this ages insulation. Characteristic defects of these systems are breakdowns of the regulator relays and starter and short circuits due to worn insulation. This also causes steam and air plugs in the fuel supply system.

A high level of atmospheric dust and low relative humidity has a harmful effect on all of the engine. Along with air, dust also works its way into the engine. This accelerates wear in the piston and cylinders and thus reduces their service life. Thus, for the ZMZ-24 engine of an RAF-2203 minibus, the actual service life of the pistons is 451,400 kilometers while the standard service life is supposed to be 500,000. Working its way into the engine lubricants and fuel, dust erodes the moving parts, clogs filters and disrupts the fuel supply system. The greatest number of malfunctions occur in the carburator and the diaphragm of the fuel pump while in diesel buses, they are in the fuel nozzles and the high-pressure fuel pump.

The hot, dry Central Asian summer therefore has a detrimental effect on motors but what about the driver and passengers?

When the air temperature outside the bus reaches 42° C, it can go higher than 50° in the cabin of the LiAZ-677 (the permissible temperature level is 31°) and 44-46° in the passenger compartment. Air movement through the interior of the bus is 0.5 meters per second and the ventilation system can meet specifications only when the movement is 1-4 meters per second.

Overheating causes excessive driver fatigue and affects his motor-sensory reactions which can cause accidents.

The passenger compartment does not contain any dust filters, conditioners or cooling system.

The creation of comfortable conditions for the driver is a question of time. As long as this problem is not solved it is obvious that it will be necessary to take all possible measures so that the driver receives proper compensation for dissipating his health driving under the burning sun.

It would probably be fair to lower the retirement age of city bus drivers to 55 if they have worked continuously for a certain number of years. On work days, the drivers need showers and hot meals right at the bus depot as well as rooms for relaxation and psychological rest and health facilities.

Observations of real operating conditions have been conducted in automotive transport enterprises by Uzavtotranstekhnika and these formed the basis for the following recommendations for "southern" variants of automobiles.

Above all, the following measures were recommended:

-- The use of heat-resistant materials that protect against solar radiation. Athermal glass can be used and in the passenger compartment the area of sliding glass can be increased. Automobiles should be painted only bright colors. The dashboard and cover of the steering column should be made from from heat-resistant materials;

-- The driver's cabin should be equipped with a thermoelectric air cooler or air conditioner. In place of simulated leather, the upholstery of the cabin and passenger compartment should be made of materials more appropriate to the sanitary and hygienic norms for a hot climate;

-- To increase the reliability of separate aggregates and units, it is necessary to increase the air flow over the radiator and introduce a hermetically-closed cooling system that uses antifreeze. It is also recommended to provide reliable protection and covering of friction parts, lubricants and hydraulic systems from sand and dust, install devices that can reliably clean the air in the fuel supply systems of internal combustion engines and place protective coverings against moisture and dust on the units and components of the transmission and steering systems. The brake shoes and drums must be cooled more intensively by the use of directed air flows.

There should be special requirements on the normal temperatures in the passenger compartment. This problem can be solved by developing and placing in buses powerful coolers, larger storage surfaces and door designs that can reduce the time spent on passenger boarding and unboarding and help maintain the microclimate inside of the bus.

The recommendations worked out by the specialists at Uzavtotranstekhnika have been sent to the manufacturers of the Ministry of Automotive Industries and the All-Union Automobile Experimental Design Institute for their use in designing, testing and mass-producing "southern" modifications of automobiles.

The interests of our national economy demand quicker solution of the problems of "southern" modifications for automobiles in these regions of the USSR.

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MOTOR VEHICLES AND HIGHWAYS

LNG-POWERED LAZ BUS PRODUCTION PLANNED

Moscow IZVESTIYA in Russian 22 Jul 85 p 2

[Article by V. Vukovich, special IZVESTIYA correspondent: "Key Task Is Introduction: The Brakes Are on a Novelty That Saves Thousands of Tons of Gasoline"]

[Text] These photographs can be taken as evidence of what is happening on our roads but they actually show certain moments in the testing of the new LAZ buses. One of these buses was made to hit an object head-on at slightly less than 40 kilometers per hour and the second was intentionally moved 360 degrees. This is the usual procedure used in testing the construction and safety and vehicles used to carry passengers. This time, the test results were studied with special care.

With few exceptions, bus engines require gasoline and all of these engines together consume tens of thousands of tons of petroleum fuels per day. meanwhile, the production of this fuel is becoming increasingly expensive for our nation. That is why it has really become necessary now to convert buses to compressed natural gas. This task was assigned to the All-Union Institute of Experimental Automotive Design in Lvov. The have developed experimental buses that differ from customary designs in that the rear part of the roof has a compact superstructure containing methane gas cylinders. No changes at all were made to the passenger compartment.

After tests were conducted, meticulous specialists came to the conclusion that they had created a bus that could use cheap fuels and therefore save 3000 rubles per year per vehicle.

The Ministry of Automotive Industries decided that the the Lvov Automobile Factory should produce the first lot of 100 of these new gasoline-saving vehicles this year. However, things soon became complicated.

Long ago when the small design bureau at this plant became an independent institute with a solid reputation, both partners turned out to be literally on different sides of the same planet. Here are some stories that require no explanation.

In 1979, the plant and consignment testing of the new LAZ-5255 bus was finished. This bus, designed for greater comfort, was to be used for intercity tourist travel. It had a diesel engine and performed well in 1980 when it was used to transport the Olympic flame from Athens to Moscow. What happened? In 1979, the factory that was supposed to produce this bus accepted the technical documentation and paid the institute 2,100,000 rubles for its work but never began mass production of the vehicle.

In the same year, the institute used an LAZ-695N bus as the basis for designing a general-purpose 695P bus. This model was also more comfortable than its predecessor and received the State seal of quality. After accepting the technical documentation from the designers and paying them the required sum, the factory, for various reasons, did not begin mass production of this model either. Having finished for appearance's sake a small number of these new buses, the factory decided to make no more of them.

I spoke about the repetition of this situation with the factory's specialists and the director at that time, A. Sled (who now heads the institute). In answer, he complained about the lack of production area in his plant. They now have another reason for not producing these models. The factory is accustomed to having the ministry its failures to produce the improved bus models. They have not been able to preserve the frame of mind that was predominant when bus construction was "overqualified".

But the factory began its life this way. They set clumsy jacks onto truck frames and riveted the simple bodies of vans. Suddenly they had the bold idea of manufacturing buses. One had to see how enthusiastically the factory workers built the model. They made most of the parts themselves, on their knees, so to speak. With no regard for time, they pored over blueprints which were supposed to become embodied in metal sometime tomorrow or day after tomorrow. But no one mentioned crowding in the shops nor did they complain about the machine tools of a rather respectable age because they had no reason to expect new ones.

Since those times, 30 years have passed. The fame of the factory has resounded afar. It now has every reason to become the leader in the industry and set the tone for the production of new equipment. But this has never happened. The desire to live with old baggage came to be particularly felt when the task was given to begin production of new buses powered by natural gas.

In the institute, the chief designer of these buses, G. Skrechko, showed me the official documents. They showed that the working blueprints for the LAZ-695NG were given to the factory in April and a list of the purchased sets of items and materials had been sent still earlier on 14 March. However, the factory director, A. Maslak in our first conversation claimed that full documentation had not been sent and it was only during a second interview that he admitted that this had indeed been taken care of.

"With the coming hundreds of machines," he continued, "there are still many problems. We are starting production but we still have not figured out where on the bus we will put the gas equipment.

Such vagueness makes one wonder how such an important task is to be carried out. All that really has to be done is to furnish finished vehicles with natural gas equipment. Nevertheless, the execution of the task to produce hundreds of buses is being put off from one quarter to the next regardless of the fact that at a recent session of the USSR Supreme Soviet, the Ministry of Automotive Industries was criticized for its slowness in producing these automobiles.

Trying to help matters, the institute itself began to look for someone to take the LAZ-695 NG. If the Ministry of Automotive Transportation of the Uzbek Republic inquired about 40 buses, then the same ministry in the Ukrainian Republic naturally decided decided to satisfy itself with a lesser number of vehicles.

We must as quickly as possible remove the brake on releasing natural gas-powered automobiles to mass production.

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MOTOR VEHICLES AND HIGHWAYS

QUALITY OF DOMESTIC BUS PRODUCTION FAULTED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 19 Jun 85 p 2

[Article by V. Vasilyeva, deputy editor of the division of machinebuilding and new technology: "The Bus of Yesterday"]

[Text] As a Gosstandart employee told me, "According to the logic of matters, any new machine entering production should be certified by the State seal of quality. I am quite afraid that the new bus from Likino will not receive it...".

Why? As a rule, the creation of any new article involves large expenditures. As specialists from the Likino factory told me, about 70 million rubles went into developing their new bus. So that their investment might pay itself back in full, the new bus must not be just better than the old one but must definitely satisfy the highest contemporary technical requirements, in other words, it must be competitive with other new models. Are these automobile manufacturers unable to help us with such a machine?

"We can do many things," said the deputy minister of automotive industries, A. Butuzov. "Aren't our Zhigulis and Volgas popular throughout the world? They bring so much money into our country! We can also make buses. Were you at last year's exhibit? What beauties they had there! We can do anything whether it is a compartment, garderobe or Morocco leather...".

What about the cars we are selling now? Don't they bring praise to their creators and money to our country? Just two models produced by the Riga and Pavlovo plants received the State seal of quality. At the end of last year, they took the emblem of honor from the LAZ-699 city bus made in Lvov. This situation was not rectified even by a novelty produced in Lvov, the LAZ-4202 bus. Most of all, the scientific and technical commission of the USSR State Committee on science and technology has already recommended that it be taken out of production and replaced with a "new model with better technical and economic characteristics".

Finally, let us consider the massive well-known LiAZ-677 city bus. The critical press articles so fresh in our memory have failed to dry up the stream of complaints coming from passengers and drivers of this vehicle. At the beginning of last year, it was the subject of a discussion at a

Gosstandart meeting. The factory producing this bus received the most serious sanctions for the poor quality of its production. The unloading came to a halt and the leaders were punished. At a conference on quality held at the plant at the end of last year, drivers again presented a long list of scores of complaints about defects, incomplete work, omissions and imperfections! This means that we can even put in "morocco leather" but what if the wheels will not turn.

For a long time we have known that the higher the goal one sets, the more ponderous the results. An orientation toward a supreme goal mobilizes and concentrates forces, frees initiative and hastens the search for solutions.

However, if we set the goal at the lowest mark, then naturally the mood is different. A curious document was shown to me at the Moscow center for standardization and metrology. While the Likino bus was being tested, the plant found serious violations of the technical specifications for the LiAZ-677 so in December of last year, the so-called "Amendment number 5 to the technical specifications" was published. It simply eliminated or made inconvenient and laborious requirements substantially easier to fulfill. For example, the technical specifications included a point calling for dust protection of the bus and now this has been omitted. Let the passengers complain about dust or noise -- the permissible noise level is now 6 decibels higher. Let them complain about water dripping into the passenger section because that is also within the established permissible levels. The fuel consumption has been legally raised by 12-15 percent...

The Ministry of Automotive Industries has just as easily smoothed out some other standards the bus was expected to meet. And why not? They made it themselves so let them change it themselves. Why improve the production and overcome the difficulties? It is much simpler to adapt the parameters to existing conditions.

They explained to me: "The LiAZ-677 is a model on its way out and therefore," they said, "there is no longer any sense in putting extra resources and efforts into it as we are now putting all of our hopes into a new bus". Let us put aside the fact that an enormous amount of money, all of it coming out of the pockets of the state, is being lost on the improvement of factory waste and the finishing of a machine which is started up almost right on the factory grounds even though you sometimes cannot even ride it out the gates. Let us resign ourselves to the fact that since a vehicle is in service for 6-7 years, we will be having to ride for some time yet in "dust- and water-penetrable" buses. The worthlessness of this situation becomes all the clearer in another example: a collective that is today used to doing poor work will not start putting out excellent products tomorrow at the wave of a magic wand. This is why I think that the "hope" of the manufacturers, the new LiAZ-5256 has found itself in the center of the sharp conflict that has flared up between manufacturers and operators.

There is no argument over whether the new LiAZ is more attractive than the old one. It has larger windows, doors with glass and a high ceiling. It has been improved for drivers, too. The motor has been removed from the cabin and it is a diesel engine which makes it more economical than the old one. Why do

they so stubbornly deny it to drivers and to their basic buyer, the Ministry of Automotive Transportation of the Russian Republic? Why have the consignment tests begun in March 1982 and supposed to have ended in September that year not been completed yet? Furthermore, in a letter sent in April of this year to the GNKT [not further identified], Gosstandart and the Ministry of Automotive Industries, the chairman of the interinstitutional consignment commission and deputy minister of automotive transportation in the Russian Republic, A. Vasilyev, considered it appropriate to continue these tests.

"The new bus," he wrote, "has many important structural defects that will make it technically backward and unsuitable for operating conditions."

The stumbling block was the motor. Today, with regard to bus design, we can produce two variants of a bus. They can be designed like the old LiAZ, where the motor was located in the driver's cabin and caused him much discomfort or they can be built like the LAZ-4202 city bus and the new LiAZ with the engine removed to the rear of the vehicle. In the case of the latter, it is the passengers that suffer from increased noise and vibration. Furthermore, as the engine has a V-configuration, it raises the floor and instead of having free or, as they say, extra passenger area along the sides, it becomes necessary to place seating on a high step. This makes the bus less roomy.

There is even a third variant for engine placement -- under the floor, as in the Ikarus. This, however, requires that the engine be a special side-mounted diesel and we do not have such motors at this time. Perhaps, the demand for these motors caught automobile manufacturers by surprise. By no means at all! Even in 1971 when the need to create a new bus became apparent, the manufacturers urged the development of a special motor for the new bus. Experiments were conducted but were never finished. And now that we cannot at all afford to be slow in making the switch to the new bus since, as the chief engineer of the Soyuz Bus Industry Production Association [Soyuzavtobusprom], G. Zavodnov, so justly and self-critically pointed out "we have run completely out of time" but the manufacturers have once again chosen the easiest and most convenient way: they have adapted for the new bus the motor mass-produced for the KamAZ automobile. Has this given them a bus?

Let us look at the test protocol signed by representatives of the Ministry of Automotive Industries in April this year. By now, about 80 changes have been made in the original design including that of the motor. So now, machines of essentially the fifth experimental generation participate in comparative tests with similar foreign models. What did we see? The LiAZ-5256 did not find first place in any of the tables of comparative data on the basic parameters characterizing technical sophistication. And this was in competition with mass-produced machines, each of which has been made for more than 10 years now.

The greatest thing that the manufacturers have accomplished has been to bring our buses up to the level of yesterday's models. And how will things look tomorrow when it goes into production while completely new models are appearing abroad? The bitter truth comes out: the fate that met the backward once now awaits our mediocre buses.

Why did we not make it our goal from the start to produce a competitive vehicle?

"We have not considered exporting our buses," said A. Butuzov. "As far as their basic specifications go, in my opinion, a bus should be unpretentious, strong, sort of," he slowed somewhat, "in a word, made of iron...".

He pleaded that our roads are poor and repair facilities weak. To say the least, I found this a strange attitude. Especially now, when the task set for literally all realms of the national economy is to make a decisive and sharp movement forward and when machine builders are taking the role of leaders in scientific and technical progress.

Not long ago at all, the minister of automotive industries, V. Polyakov, signed a protocol by the ministry's scientific and technical council that stated: "I cannot accept the suggestions on the structure of our bus park until 2000 that were given by Soyuzavtobusprom and the The Automotive and Automotive Engine Scientific Research Institute". This is an eloquent confirmation that the industry lacks a concise technical policy. This is beginning to seem a very cloudy prospect.

"The time is coming," said A. Butuzov, "and it will be possible to make the sort of bus we want".

The time has come to make that bus. The intention to reach the highest goal may no longer be just the appearance of someone's good will because today it is an unconditional demand made by life itself and the logic of our society's development.

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MOTOR VEHICLES AND HIGHWAYS

PROBLEMS WITH QUALITY OF KAV2 BUSES

Moscow PRAVDA in Russian 24 Jun 85 p 2

[Article by A. Minayev, PRAVDA correspondent: "Disqualification: To Rationally Manage"]

> [Text] About two years ago, a bus produced by the Kurgan Bus factory had its State seal of quality revoked. To a certain extent, this event led to a letter to PRAVDA by engineer Y. Levashov in which he wrote about serious flaws in production that have not been eliminated but, on the contrary, were very carefully hidden and about errors in the organization of production. Earlier, Levashov, a communist, had more than once pointed these things out to the plant directors and at party and worker meetings. However, he could not "get through" so he decided to write to PRAVDA.

The USSR Gosstandart seal of quality was taken from the bus. What else was done? Were workers mobilized to eliminate these faults and step forward to make up for the omissions and gain back their lost position?

The Kurgan Bus Factory is a relatively young enterprise but has still managed to go through what they consider a thorough reconstruction. What was done? A new building was erected (they are being built even now) and solid funds were put into this. However, it is quite strange that the new facilities contain equipment that has long been obsolete and should have been replaced even 10 years ago. Little was done to improve the weak stock of tools or the experimental facilities. The design staff has interesting ideas about how to renew their production but the conditions by which these ideas can be realized have not been created and the production of new bus models has been put off from year to year.

It is being asked why they have spent so much money and effort to reconstruct their plant if in the end they are still producing the same old KAvZ-685?

Another question being asked is how can a plant turning out such a product even exist? It seems as if life itself would make managers and specialists hasten themselves to get into step with the leading plants or at least no longer content themselves with stagnation. In reality, this has not happened.

The bus manufacturers were taken to task by the ministry: they were told that it is not right to be so backward. Even local organs swore about it (the city party committee even penalized Director A. Grishkov and Party Committee Secretary A. Avkhimovich). But the position did not change very much. The secret is that all of the measures are successfully countered by...deficits.

The Kurgan Bus Factory and the very unprepossessing KAvZ-685 are very much needed by petroleum and natural gas producers, geologists and taiga dwellers because this vehicle gets through where other skid. This unpretentious machine is preferred by buyers. This bus is even used at the plant itself: you can avoid overtiring yourself is finding ways to improve deficit products.

Meanwhile, there are reserves here visible to the naked eye. Let us start with the organization of labor. For example, a single bus does not pass through production unless the director of the body-welding shop, V. Plekhanov, has not complained about the low quality of components and parts made by other divisions but he easily closes his eyes to the fact that his shop produces 30 to 50 percent of the carriages in which the primer has bloated, the paint has spread and there are signs of corrosion. There is one cause of these flaws -- the proper technological procedures are not being followed. Now H. Barbashin, the director of the assembly shop, complains: "You cannot return such a part because there is no reverse conveyor. We are knowingly turning out spoiled products...".

This is the type of "chain" that causes waste. I had the occasion to talk to scores of people. Everyone saw the faults very well and knew about their own omissions. There was even some talk of "working relay", engineering support for worker initiative, an experiment to encourage quality work and many other ideas. Nevertheless, they continued working as before. T. Ovchinnikova, a plant worker and communist, wrote in a letter that little has changed at the plant. As before, the party committee's commissions to monitor administration activities are not doing anything and nothing is being done about the suggestions made at party and worker meetings. More than once, commissions led by specialists have checked the quality of finished products and the maintenance of socialist property. Many concrete suggestions were made. However, after the checks were over, everything quieted down and the measures proposed to correct faults were rejected.

I took a walk to the division outside the gates "buyer service". This division was supposed to work out conflicts with buyers. Here many of the flaws of the quality of production are very clearly visible. Not too long ago, the "order" was as follows: the buyer paid for the order and then the drivers received their buses. Take it or not, the production was considered finished even if the bus could not move under its own power. Sometimes the "buyer service" had to have it out face to face with angry drivers. The order has now been somewhat changed: first the drivers take the buses and then they pay for them. Is this supposed to be a change for the better?

"Everything flows along but nothing changes," said an employee of the buyer service, test driver D. Rychkov, with bitter irony. "Sometimes as many as 40 machines together with their out-of-town drivers have to be "set on their feet" because the conveyor is turning out defective products".

That little concern is felt for the honor of the factory's brand name is attested to by the following fact. The main engineer of the plant, Y. Sarafanov recently turned to the Ministry of Automotive Industries with a letter in which he wrote: "The buses produced by our plant are structurally based on the finished chassis of the GAZ-53 truck and are essentially derived from that vehicle. Therefore, the buses cannot be unique and this makes it hard to raise their level of technology. We ask that you do not introduce these buses to any list of types of machinery of greater economical importance".

Is that not a rather strange request? What is more surprising is that the ministry readily answered the request and decided to completely free the plant from having to have its buses certified by the State seal of quality! The plant was allowed to manufacture the old product for another few years. Thus, the ill-starred deficit worked even at the ministerial level. In essence, the plant's production was disqualified, in other words, it was switched from a higher category of quality to a lower one. And no one took this seriously. This means that the process has gone even deeper and the workers feel less responsible for the quality of their product.

The plant's chief designer, I. Basov said: "We have experimental models of new buses that were produced just a few years ago. To make it possible to begin their mass-production, we must sign contracts for the supply of modern materials, update our stock of tools, strengthen our design facilities and give up the old technology, but who needs this?"

Of course, it would be easier to go the other way without going through any special problems. This is all the more true when one considers that nothing was lost here from having the seal of quality revoked. Where the plant had earlier received tens of rubles for every machine already marked with the five-pointed star, this sum has now been returned with interest. How? For making slight design alterations, the plant receives from purchasers much more than before. This is how the Kurgan bus builders follow the beaten path.

It still remains to be added that Engineer Y. Levashov was forced to leave the factory. They could not forgive him for having "brought the litter out of the cabin". What good did it do? All things considered, it seems to have profited only those who suppress criticism but in no way has it benefited those who suffer inside for the sake of the factory or think realistically about the future of his plant.

12261
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RAIL SYSTEMS

RAILWAYS MINISTER ON PRIMARY TASKS OF RAIL SYSTEM

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 4 Aug 85 p 2

[Article by N. Konarev, minister of railways under the rubric "Day of the Railroad Worker": "The Reserves of Our Railways"]

[Text] Today is Railroad Workers' Day. The resolutions of the April (1985) CPSU Central Committee Plenum, and the recommendations and conclusions of the Central Committee's conference on accelerating scientific and technical progress require that railroad workers rapidly overcome their deficiencies and "bottle-necks" and achieve a new level of work quality. This was discussed at the solemn meeting dedicated to the Day of the Railroad Workers held in Moscow on 2 August.

Present in the presidium were N. A. Tikhonov, member of the CPSU Central Committee Politburo and chairman of the USSR Council of Ministers; L. V. Smirnov, deputy chairman of the USSR Council of Ministers; K. S. Simonov, head of the CPSU Central Committe Department; heads of ministries and departments, leading workers in production and representatives of the public.

Minister of Railways N. S. Konarev delivered a report.

The meeting's participants asserted that railroad workers will put forth all their efforts, knowledge and experience to complete their strenuous tasks and socialist obligations.

The need for the rapid development of the country's economy makes ever higher demands of railroad transport. Full satisfaction of the economy's demands requires a systematic improvement of the technology and organization of freight and passenger transport, and improvement in all rail operations. It is necessary not merely to increase deliveries, although this is very important, but on the basis of accelerating scientific-technical progress, to set this branch on the path of intensive development.

Railroad workers see their primary task as the unquestioning completion of the plan and of the socialist obligations of the final year of the five-year plan. To accomplish this the network must ship more than 11 million tons of freight

a day. We consider this goal completely realistic. After the losses tolerated in the first months of this year, the work rate was successfully increased in the second quarter, hauling more than one billion tons of freight.

We know that there still are not enough railcars to ship all goods. The Ministry of Railways is making every effort to increase shipping resources. It is completely certain that the plan obligation for the devlivery of freight will be unconditionally met through close cooperation with the Ministries of the Coal Industry, Ferrous Metallurgy, Timber, Pulp and Paper, and Wood Processing Industry, and other shippers through the liquidation of mutual losses.

In long-range plans we have set a primary reference point for ourselves: the coming 12th five-year plan will be the turning point in intensifying transportation work and increasing its effectiveness. First of all, it is planned to consistently convert the key routes of the railroad networks to an intensive technology. Presently, not all of our double-tracked lines are operating in a highly efficient manner. In a number of them the annual freight traffic volume is one half of the primary traffic routes.

The capacity and processing ability of the railroads are growing along with the strength of the branch's enterprises. New efficient lines, junctions and stations, locomotive and railcar depots, power stations, automatic machines and communications, freight and passenger installations and plants are being built, renovated and modernized. "Bottle-necks" and other existing disproportions are being eliminated. In this, primary attention is being devoted to the reconstruction of operating capacities and their technical and technological reequipment.

In this regard, the ministry is reviewing investment policy. Capital investitures, equipment and resources are being directed to where economic interests and the possibility of attaining a rapid and significant rise in the level of transport acutely demand it. In particular, a structural and technological reorganization of the operational management, including a transition to centralized control of train movements over large test areas, supply lines and rail routes is being implemented for improving the management of the transport process.

Railway workers themselves are vigorously participating in the intensification of the transportation process. Recently, the board of the Ministry of Railways and the presidium of the central committee of the branch's trade union approved the initiative of the Southern Railroad collective, which decided to spread competition for an increase in work effectiveness by efficiently organizing train movements, and increasing the weight and the static load of cars. Collectives of all services and sub-units of the railroads developed the necessary technical and technological specifications for uninterrupted movement and transfer of trains from neighboring lines. This initiative is gathering force in the entire network.

One of the most significant intrabranch resources is the increase in the weight and length of trains on the long-distance rail lines. Using this

resource provides a significant increase in the lines' transport capability, labor productivity and fuel and energy savings. The program for developing heavyweight movement calls for an increase in average train weight during the five-year plan by not less than 500 tons.

I will talk briefly about ways of achieving this goal.

At the present time, trains weighing from 6,000 to 8,000 tons with locomotives in front regularly only travel over a total 10,000 km of the 145,000 km of available rail lines. By the end of the forthcoming five-year plan, the circulating range of such trains will increase by 6 times. In the future we are also considering operating trains weighing from 8,000 to 16,000 tons using a second and third locomotive in the center of the train and controlling them by radio.

There is still much to do in the development of heavyweight shipments. Scientists and transportation specialists are working on the development of an effective technology for marshalling, disbanding and channeling heavier and longer trains in all directions. In these circumstances it is especially urgent that problems concerning the technical improvement of electric locomotives, such as increasing their power, reliability and longevity, be overcome.

At present, 12-axle alternating current electric locomotives, the VL85, are being developed jointly with the Ministry of the Electrical Equipment Industry and their testing has begun.

An increasing volume of traffic has caused radical changes in the structure of the diesel engine stock: a significantly larger portion of which must be comprised of diesel locomotives having 4,000 to 6,000 horse power each, that is, twice as powerful in comparison with that currently possessed. In accordance with this requirement, the Ministry of Heavy and Transport Machine Building and the Ministry of Railways have outlined and are implementing a broad work program for creating new diesel locomotives. Testing of a 4,000 hp locomotive is being completed, and the first prototypes of 6,000 hp diesel locomotives having unique properties and design have been built.

Raising the static load of the cars is another way of increasing the average weight of a train and an effective means of building transport volume. This year appreciable results have been achieved in this area. For example, in the second quarter the average carload increased by two tons in comparison with last year. From the beginning of the year this allowed the additional shipment of more than 30 million tons of commercial products. But full capacity is still far from being realized. The current gap between a car's average load-bearing capacity and its actual load exceeds seven tons. This is a large reserve and the railway workers are attempting to make maximum use of it. But, it is also necessary to organize an overall search for and introduction of efficient methods of loading.

Virtually all of the railroad workers' activities and a majority of the technological processes and operations encompass programs of mechanization and automation of production and control. Today automation allows the use of

progressive technology to marshal trains with increased transit capability, notify recipients of freight deliveries in advance, compile delivery documents by computer and allot empty railway cars to shipments by considering their suitability and typical load categories. Owing to this, the car's turn-around time will be sped up by 3 to 4 hours and the locomotive's productivity will be increased.

The programs of mechanization and automation and the introduction of new equipment are the basis for easing the railroad workers' labors and raising their productivity. In the branch there is still a significant portion of the usable work force occupied with manual labor, although there are already reliable machines and mechanized means for ordinary track repair and maintenance. The fact is that there are clearly not enough of them. Here we await help from the machine building workers.

It must be said that the accuracy and continuity of the transport system's work depends in large part on the freight consignors and consignees. Last winter great difficulties arose due to a disproportionate development in the basic production and shipping methods of many industrial concerns. To eliminate this situation, the Ministry of Railways, along with others ministries, is introducing a set of measures for improving mutual working operations, taking into account the preparations of the entire transport sector for steady work during the winter.

We are devoting special attention to the improvement of passenger transportation. Implementing programs for increasing passenger trains' speed have an important significance. In the coming five-year plan the speed of 67 long-range passenger trains will be increased to 9 of the network's destinations stretching about 37,000 km, including a Trans-Siberian route, Moscow-Vladivostok, and Leningrad, Brest, Kiev, Riga and the Crimea.

The railroad workers are deeply cognizant of their responsibility for their assigned mission. They are increasing shipping in every way possible, and are attempting to use new reserves. The branch workers greet their professional holiday under conditions of increased labor and complete resolve to successfully fulfill the plan and their 1985 socialist obligations to meet the 27th Congress of the CPSU in the appropriate manner.

13110

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RAIL SYSTEMS

RAILWAYS MINISTRY OFFICIALS INVOLVED IN GARDEN PLOT SCANDAL

Moscow IZVESTIYA in Russian 7 Jul 85 p 2

[Article by Minister of Railways N. Konarev under the rubric "After IZVESTIYA's Publication": "Whose Is the Garden Plot?"]

[Text] The Ministry of Railways carefully reviewed the article "Whose Is the Garden Plot? or The Story of How Personal Interests Turned Out Stronger Than Conscience and the Law," published in the newspaper IZVESTIYA (No 150). The facts set forth in the article were verified by a special commission and confirmed. In the organization of the Rodniki Gardening Society in Istrinskiy Rayon of Moscow Oblast, gross violations of actual legislation were permitted involving the acceptance of members into this society, and, especially, the distribution of plots of land assigned to the Moscow Railroad Administration.

Certain responsible officials of the Ministry of Railways and the Moscow Railroad and its divisions, using their official positions, displayed unscrupulousness and personal indiscretion when they joined the Rodniki Gardening Society and brought in their relatives. Moreover, people not even connected with railroad transport were accepted into the gardening society.

It was suggested to all employees who had received plots of land in violation of the established rules that they surrender them for distribution among workers of Moscow-Riga division enterprises and employees of the Moscow Railroad administration.

The criticism of First Deputy Minister F. Shuleshko was acknowledged to be justified. Knowing about the illegal activities of his relatives in joining the Rodniki Gardening Society, he did not stop these activities, which seriously undermined his authority as a leader. The collegium took into consideration the fact that F. Shuleshko has applied for retirement for reasons of health, and suggested that he remove his relatives from the society's membership.

Moscow Railroad Chief I. Paristyy was severely reprimanded for demonstrated unscrupulousness, and for lack of control and strictness in distributing plots of land to the Rodniki Gardening Society.

The collegium accepted the decision to relieve Moscow Railroad Deputy Chief V. Konyushevskiy of his duties for permitting serious legal violations in the distribution of garden plots.

For illegal activities connected with his son's joining the gardening society and demonstrated lack of strictness, Ministry of Railways administration chief V. Shepetovskiy deserves to be relieved of his duties. But, considering his application for retirement and his assurance that his son will surrender the plot of land, the collegium reprimanded him severely.

For legal violations permitted in connection with membership in the gardening society, A. Polikarpov, chief of the Ministry of Railways Accounting and Bookkeeping Administration, has been severely reprimanded.

In connection with the occurences of legislation violations--which have been established by verification--when other employees joined the Rodniki Gardening Society, the collegium has charged the Ministry of Railways and Moscow Railroad administration chiefs with reviewing, together with party organizations, the degree of these people's responsibility--within one week's time.

The question of the party responsibility of ministry staff officials who are party members will be reviewed by the party committee of the Ministry of Railways.

The Ministry of Railways collegium has demanded that officials of the ministry, rairoads, and all railroad transport enterprises and institutions conduct an inquiry and establish the proper procedures for organizing the gardening society and distributing plots of land, that they see to it that legislation is strictly observed, that they raise the level of exigency, first of all with officials, so that legality is observed, and that they conduct a resolute struggle with negative occurrences alien to the socialist way of life and communist morality.

12962
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RAIL SYSTEMS

BUREAUCRACY STALLS NEW REFRIGERATED CAR PRODUCTION

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 31 Jul 85 p 2

[Article by V. Volnov, employee of the Poisk Scientific Production Association, USSR State Committee for Inventions and Discoveries, under the rubric "A Strict Accounting for Resources": "The Troubles of a Refrigerator on Wheels"]

[Text] It is hard now to find out who it was in the academic institute working on fundamental problems of the physics of low-temperature processes that first had the "seditious" idea of using liquid nitrogen (with a temperature of minus 196 degrees) for preserving fruits and vegetables. One thing is clear: what became the starting point for the applied research was the well-known biochemical axiom according to which efficient preservation is possible only if one can markedly slow down processes of vital activity on a cellular level in products of animal or vegetable origin. For this there was a magic wand -- liquid nitrogen -- which, judging from numerous experiments, easily caused cells to go into lethargy.

The proposal turned out to be brilliantly correct. In experimental isothermic compartments equipped with nitrogen refrigeration systems, fruits, vegetables, berries, meat by-products, fish, grain and even flowers were perfectly preserved in their original state for weeks. But an experiment in institute laboratories is one thing; hauling goods near and far in harsh conditions is another.

And so we have two vehicles equipped with NAST-3 liquid-nitrogen systems setting out on a long trip. The first is hauling peaches from the Kuban to Leningrad, and the second has cherries from Moldavia for Moscow. Traveling alongside are refrigerator trucks with the same produce and with the usual freon refrigeration systems. According to receiving board documents, the end results look like this: 38 percent of the peaches were lost while being transported in the usual refrigerator trucks and 50 percent of the cherries, while in both cases the vehicles with nitrogen had a zero percent loss.

"The explanation for such contrasts is simple. As distinct from the freon system, where everything is set up on the principle of refrigerating the walls of the compartment, we spray the liquid nitrogen directly into the space. Not only does it lower the temperature as needed, it covers the produce with a very fine film creating a strong protective inert medium," commented F. Babenko, one

of the developers, on the results. "We have conducted many of such comparative experiments and have made a thorough economic substantiation of the advantages of our system. Among other things, it has been proved that the savings, let us say for each ton of tomatoes hauled by our vehicles, amount to 100 rubles, for peaches and cultivated strawberries -- 300, and for wild strawberries -- 330 rubles."

It is natural that after such a clear "campaign" the developers have, as they say, rolled up their sleeves. There are a number of important practical problems left to be solved. The main ones are considered to be the production of isothermic truck compartments and the creation of equipment for future service stations to supply nitrogen.

The first task has been solved successfully with the aid of the UkSSR Ministry of Motor Transport, which organized the production of the truck compartments at a Donbass motor vehicle repair plant. Equipment for the nitrogen supply stations -- like the nitrogen refrigeration systems themselves -- was made at the institute's experimental plant, the model design for the station was executed by Ukrenergochermet, and the construction was completed without any special problems by the Kharkovpromstroy Trust.

In a short time the Kharkov, Kiev and Voroshilovgrad motor transport managements had received about 120 vehicles equipped with nitrogen refrigeration systems. In accordance with the republic's "Agrokompleks" target program, they were submitted for interdepartmental testing on intra-urban and oblast routes. The examination showed the new refrigerator vehicles were highly dependable and efficient. Thanks to them, the local meat packing plant in Kharkov, to give an example, was able to begin the output of non-stock products (liver, pluck, kidneys, etc.). Calculations show that additional profits in this case may exceed 1 million rubles per 100 vehicles. It is no wonder that hundreds of such vehicles have been requested from the institute for the new five-year plan by the UkSSR Ministry of the Food Industry and Ministry of the Meat and Dairy Industry, the repulic's union of consumer cooperatives and a number of other departments.

"Who is going to satisfy the customers' demands?" I asked G. Khorosh, head engineer of the Kharkov Physico-Technical Institute of Low Temperatures.

"I don't think anyone will during the coming five-year plan," he answered. "We have appealed to the Ministry of Motor Transport a number of times with the request that they obtain the technical specifications from us for a series output of liquid-nitrogen systems and isothermic truck compartments. But -- you won't believe it! -- there is still no answer. The ministry officials are stubbornly silent...

However the problem is not only with specialists in the Ministry of Motor Transport. Experience in operating the new refrigerator vehicles has shown that motor transport enterprises are absolutely not interested in aquiring them. And not only because transport workers, concerned with fulfilling their ton-kilometer plans, are essentially indifferent to the degree to which their loads are preserved. There are also the increased expenses of using such

vehicles on direct assignment. The costs for the nitrogen and its delivery to the motor vehicle filling stations in this case fall to the UkSSR Ministry of Motor Transport. And where will it get the capital to cover this? The answer is clear: the cost will be charged to the consignor. This means an optimal procedure for price-setting must be determined for such transport. However the USSR Gostkomsen [State Committee on Prices] has refused from the outset any attempts to touch the "holy of holies" -- the regular transport tariff system currently in operation. It is not surprising, therefore, that in the majority of cases the refrigerator vehicles which have been produced now transport all kinds of loads, except for perishables.

The introduction of "the nitrogen vehicle" has also been held up by a long outmoded system of calculations between the consignor and the consignee. Paradoxical as it might seem, this system does not provide any incentives for a faultless delivery of the produce. Likewise absent are practice-tested methods for determining loss of perishable produce in different sectors and at different stages. There is no record of such losses kept in the statistical accounting. The All-Union Gosplan, Goskomtsen, Goskomtrud [State Committee for Labor and Social Problems] and USSR TsSU [Central Statistical Administration] cannot come to an agreement with each other about this problem and get out of the labyrinth of their own circular restrictions.

For years the question of introducing supplements to current standards for perishable produce -- supplements which would carefully regulate the process of preparing it for transport in the new vehicles, temperature settings, transport deadlines, natural wastage norms, etc. -- has not been resolved.

In spite of repeated requests by the developers, planning organs refuse even to discuss (!) the question of creating the necessary basis for repair and maintenance of refrigerator vehicles of the new type. In connection with this, a "cold virus" has infected the organizations responsible for the construction of nitrogen supply stations as well. Out of eight planned stations in the Ukraine, only one has been supplied...

Of course, the inventors are hurt and annoyed today about the arrested fate of their offspring. But we -- and you dear reader -- are also annoyed, for all this scandalous bureaucratic inefficiency deprives us in this case of a quite substantial and indisputably necessary addition to our daily menu.

12962
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RAIL SYSTEMS

RAILWAYS PERFORMANCE STATISTICS FOR 1ST HALF OF 1985

Moscow GUDOK in Russian 25 Jul 85 pp 1,3

[Article based on materials of the Administration of Statistical Records and Reports of the USSR Ministry of Railroads : "Review of Railway Transport Work in the First Six Months of the Year: Fulfill Our Duty and Successfully Complete the Five-Year Plan"]

[Text] In realizing the decisions of the April 1985 Plenum of the CPSU Central Committee and endeavoring to compensate for the substantial delay which was allowed in the first quarter, railway workers in May began overfulfilling the total shipment plan. The level of use of technical means has been increased. In June the shipping plan was overfulfilled by 6.5 million tons or 2 percent. Shipping volume rose by 9.8 million tons or 3 percent as compared to June 1984. Thirty-one roads fulfilled their plans.

As a result of the quick pace picked up in May-June, the plan for the second quarter was overfulfilled by 7.6 million tons. The increase in shipping compared to the corresponding period last year was 17 million tons. The plan was fulfilled for 28 types of freight. Twenty-eight roads fulfilled their plans for total shipping. Plans were not fulfilled on the Volga Road (1.9 million tons short), the Krasnoyarsk Road (646,000 tons short), the Sverdlovsk Road (35,000 tons short), and the Kemerovo Road (14,000 tons short). The freight turnover plan was overfulfilled by 3.8 billion ton-kilometers, or 0.4 percent. Freight turnover increased by 3 percent as compared to the second quarter of 1984. The passenger turnover plan was overfulfilled by 0.7 billion passenger-kilometers.

This change in the work permitted the CPSU Central Committee Politburo to note at its recent meeting that the state of affairs in railway transport is improving. There is still much to do to completely make up for what was omitted in the first quarter and to sucessfully complete the year and the five-year plan. Results of the work as a whole for the first six months of the year prove that the task is far from simple.

Shipped were 1.908 million tons of national economic freight. This is 45.7 million tons or 2.3 percent less than the plan and 48.2 million tons or 2.5 percent less than the level for the same period last year.

The plan was fulfilled for 19 of 42 types of freight of the operational list. Above-plan shipping was 375,000 tons of nonferrous ore, 2.4 million tons of grain, 1.6 million tons of ferrous scrap metal, 673,000 tons of chemicals and sodas, and a substantial quantity of sugar, meat, animal fat, fish, potatoes, vegetables and fruits, and other foodstuffs, as well as numerous other types of freight.

The Azerbaijan, Central Asian, West Siberian, Far Eastern, Moscow, Transcaucasian, West Kazakhstan, Alma-Ata, Transbaikal, Moldavian, and Baikal-Amur Roads fulfilled their plans for total shipments.

However, substantial lagging in delivering a number of major types of freight was permitted on a number of the roads and in the system as a whole.

Shipments of hard coal were 9.2 million tons short; this included a shortage of 4 million tons on the Kemerovo Road, 3 million tons on the Donetsk Road, 646,000 tons on the Krasnoyarsk Road, and 591,000 tons on the East Siberian Road.

Shipments of petroleum in the system as a whole were 4.2 million tons short. The largest share was on the Kuybyshev Road (2.5 million tons), the Volga Road, (719,000 tons), the Donetsk Road (440,000 tons), the West Siberian Road (378,000 tons), and the Northern and Southeastern roads (more than 300,000 tons each).

Shipments of iron and manganese ores were 4.2 million tons short. The largest lag was on the Dnepr and Southern Roads.

Shipments of lumber were 8.7 million tons short of the plan, primarily because of the workers of the Northern, Gorky, Sverdlovsk, Krasnoyarsk, East Siberian, and October roads.

Static load for the first six months of the year increased by 900 kilograms. The assignment was overfulfilled by 850 kilograms. The most intensive growth was achieved in the second quarter -- 1,500 kilograms. The plan for the first six months of the year on this indicator was fulfilled on all roads while 13 of them exceeded it by 1-1.5 tons. The increase in static load permitted more than 30 million tons of output to be transported without enlisting additional rolling stock.

The proportion of through trains ["marshruty"] was 43.7 percent. This is 0.3 percent lower than the level for the corresponding period last year. The level of through-routing unjustifiably declined for a number of types of freight as well as on the whole on the Southwestern, Dnepr, Volga, Sverdlovsk, West Siberian, and East Siberian roads.

Freight turnover totaled 1.796 trillion scheduled ton-kilometers. This was 3.6 percent less than what was planned. Freight turnover decreased by 38 billion ton-kilometers or 2.1 percent as compared to the corresponding period last year.

The average distance of freight transport increased by 6 kilometers. The delivery distance of most bulk freight -- iron ore, ferrous metals, industrial raw materials, chemical and mineral fertilizers, and other output -- increased.

Passenger turnover rose slightly to 167.9 billion passenger-kilometers. The plan was not fulfilled. The greatest lag was permitted on the Baltic, Dnepr, Azerbaijan, Kyubyshev, and South Ural roads.

The average daily transfer figure at junctions between roads was 365,000 cars. This is 9,400 cars less than the same period last year. Nonetheless, the movement of cars substantially accelerated in the second quarter. The increase was 34,400 cars as compared to the first quarter. There were 10 days with transfer figures of over 400,000 cars.

A trend toward improving the use of rolling stock was observed in the system as a whole and on most of the roads in the second quarter. Car turnover was sped up by 11 hours as compared to the first quarter. Positive results in the first six months of the years were achieved on the October, Alma-Ata, Central Asian, Transbaikal, Virgin Lands, East Siberian, and Far Eastern roads.

The average gross weight of a freight train was 3,034 tons -- 24 tons greater than what was planned and 69 tons higher than last year's level. This permitted 43.5 million tons to be transported without having to assign an additional 137 trains every day. Train weight under electric traction increased by 79 tons to 3,190 tons, while the corresponding figures for steam traction were 50 tons and 2,809 tons.

Train weight increased on all roads and 27 of them fulfilled their plans. The greatest increases were achieved on the Baikal-Amur (125 tons), East Siberian (122 tons), Far Eastern (106 tons), October and Krasnoyarsk (104 tons), Transbaikal (103 tons), and Southern Ural (100 tons) roads.

Industrial railway transport (IRT) enterprises fulfilled the transport plan by 100.1 percent and the freight-handling plan by 95.9 percent. The greatest lags were permitted at the Vladimir, Moscow, Perm, Volgograd, and Ukrainian associations. Car downtime at IRT enterprises increased by 1.06 hours compared to the norm. Downtime at enterprises of the Kyubyshev, Armenian, Sverdlovsk, and Volgograd associations was especially high.

The capital construction and construction-installation work plan for railway transport is being fulfilled slightly better than last year. Fixed capital worth 1.4 billion rubles has been introduced. Nonetheless, the assignment was only 86 percent fulfilled. Only seven roads fulfilled their assignments: Moscow, Southwestern, Odessa, Southern, Dnepr, Transcausian, and Southeastern.

The plan for introducing second tracks, electrification, and automatic braking was realized. However, the plan for introducing living space was underfulfilled by 138,000 square meters; this includes a 112,000 square meter shortage by Ministry of Transport Construction organizations. The greatest lag was permitted on the Alma-Ata, Kemerovo, Virgin Lands, East Siberian, West Siberian, Southwestern, and West Kazakhstan roads.

Railway transport industrial enterprises fulfilled the sales plan for production of normative net output, as well as for production of most of the listitems of the national economic plan. The volume of output being sold exceeded 1.206 billion rubles. This is 0.3 percent higher than the plan and 3.1 percent higher than what was achieved last year. Four million rubles worth of output were sold beyond the plan. TsTVR [Main Administration for the Repair of Rolling Stock and the Production of Spare Parts] enterprises fulfilled the plan for repairing freight cars at electric locomotive, steam locomotive, and electric section depots. However, certain plants and roads permitted a lag, primarily in repairing freight cars. The plan for repair on the whole was underfulfilled by 4,251 cars by plant main administration enterprises. The Popasnaya Plant underdelivered 618 freight cars, the Barnaul Plant -- about 1,000, and the Ordzhonikidze Plant -- 622.

Plants fulfilled the plan for repairing passenger cars by only 93.8 percent. Half of the plants which repair passenger cars permitted lags.

The plan for production of switches was 99.2 percent fulfilled, while for individual cross braces the figure was 89.9 percent, and for car speed reducers -- 96.9 percent. This complicated the reconstruction of stations.

Labor productivity -- the lag in fulfilling the transport plan had a negative effect on this major economic indicator. In the first six months of the year, labor productivity was 0.4 percent lower than in the same period last year. It is good that in the second quarter the situation has begun to improve from month to month. As a result, the lag permitted in the winter has been reduced. In the second quarter labor productivity increased by 4.3 percent. In April 18 roads had already fulfilled the established assignments; in May it was 22 roads.

In accordance with the directives of the Politburo of the CPSU Central Committee, all labor collectives should take measures to accelerate the work pace on the basis of a thorough analysis of the results of plan fulfillment for the first six months and the causes of any lags permitted.

It is important not to lose time; we must compensate for the lag as quickly as possible, do everything necessary to successfully fulfil the year's plan assignments, and create a reliable foundation for a positive start in the 12th Five-Year Plan.

12424
CSO: 1829/236

RAIL SYSTEMS

RAILCAR PLANT HAMPERED BY PARTS SHORTAGES

Moscow IZVESTIYA in Russian 7 Aug 85 p 2

[Letter to the editor from Kremenchug workers, with an editorial reply, under the rubric "Letters with Commentaries": "Again the Suppliers Have Let us Down"]

[Text] Dear Editor:

Due to an extremely serious situation that threatens to disrupt the fulfillment of the annual plan for the Kryukov Railcar Building Plant of the Kremenchug Railcar Production Association, we earnestly request that you publish our letter to the USSR Minister of Heavy and Transport Machine Building, Comrade S. A. Afanasev.

Esteemed Sergey Aleksandrovich!

As you know better than anyone else, improvement in the railroad transportation work of the country is unthinkable without the participation of our plant, which produces the majority of freight cars and is the basic supplier of wheelsets and trucks for the railcar building plants of the whole sector. You also know that for work achievements in a large-scale economic experiment in 1984 our collective was awarded the Red Banner of the CPSU Central Committee, the USSR Council of Ministers, the All-Union Central Council of Trade Unions and the All-Union Komsomol. This obliges us to work even harder during the final year of the five-year plan and to greet the 27th CPSU Congress in a fitting manner. But we cannot work smoothly because of our suppliers.

Already in the first quarter of the present year, we had to work without a technological surplus -- through the fault of the Dneprodzerzhinsk Plant imeni Gazeta "Pravda," the Zhdanovtyazhmash Association and the Bezhitsk Steel Foundry. These are all enterprises of the Ministry of Heavy and Transport Machine Building, which, unfortunately, even while confirming the delivery schedule for a large-scale railcar casting for our "brother" association plant -- the Kremenchug s el-casting foundry, plans the familiar incomplete deliveries to the Kryukov Railcar Building Plant.

In spite of all the difficulties, because of carry-over reserves, our collective completely fulfilled all the plan quotas for the first half-year, with a 100 percent fulfillment of contracts and orders. This is an indisputable victory for the collective, but...

But since July 5 the plant has been in a real fever. Serious shortages in deliveries of casting materials and parts from the Bezhitsk Steel Foundry, the Dneprodzerzhinsk Railcar Plant and the Vyksa Metallurgical Plant are the reason. Three work shifts have not been able to assemble wheelsets due to the absence of axles from the Bezhitsk plant, a large deficiency of "supports" on account of the Dneprodzerzhinsk plant, and on July 10 one section was dismissed from work for an indefinite period of time due to a lack of wheels from the Vyksa plant. Of course, no one will forgive us for this. Alas, appeals to our own Soyuzvagonmash have yielded no positive results.

For this reason we appeal to you, Sergey Aleksandrovich.

On behalf of the collective of the Kremenchug Railcar Production Association:

V. Ushkalova, electric welder, delegate to the 26th CPSU Congress
G. Chernaya, coremaker, delegate to the UkSSR Supreme Soviet
N. Logvinenko, fitter, Hero of Socialist Labor
N. Shapoval, engineer, Hero of Socialist Labor

KREMENCHUG

From the Editor: We received this letter two weeks ago. Our own newspaper correspondents verified it and confirmed all the facts. In publishing this workers' letter the editorial board expects that the Ministry of Heavy and Transport Machine Building will finally be able to sort out relationships among enterprises in its jurisdiction. Disipline, including first and foremost production discipline regarding contracts and deliveries, ought to have the force of law.

12962
CSO: 1829/286

RAILCAR RENUMBERING PROGRAM CAUSING PROBLEMS

Moscow GUDOK in Russian 17 Jul 85 p 2

[Article from Kem by V. Khimkov, railroad car acceptance inspector: "How Mistakes are Born"]

[Text] The renumbering of railroad cars has been going on since January of the present year. It is necessary for efficient use of the EVM [electronic computer] in managing freighting. Naturally, they prepared for it in advance in the Accounting and Bookkeeping Administration and the Railroad Cars Main Administration. Connected with the renumbering, directives, instructions, and supplements to the directives and instructions and other documents, went to the October [October (Leningrad) Railroad] in a heavy stream. At the end of last year, they assembled us railroad yard and car repair shop workers at the road's administrative office, and conducted something like a seminar and conference dedicated to the forthcoming job.

And now time has passed. Just what have the months that have passed shown? Oh, only that the organization of this serious business has been taken lightly, to put it mildly. And consequently, not only is the doing of rolling-stock repair tasks being disrupted in some repair shops because of this, but confusion is also occurring with the numbers, which may lead to much more serious consequences in the future than the idle time of cars readied for operation on shop tracks.

It began with our renumbering of certain cars being called off. The road had not been supplied with the numbers to be applied and the 3-millimeter sheet iron for making the plates under them. Then the confusion with types and models of rolling stock started. Whereas all the models are indicated in the illustration book "Freight Cars of USSR 1,520-millimeter [5-foot] Gauge Railroads," there is not a single word about types. Meanwhile, the number is selected depending precisely upon type.

At the end of last month, in checking trains, I saw for myself that the cases in which to apply number 930, and in which 931, 902 and 904, 400 and 404, 600 and 604, had already begun to be confused.

We don't know, for example, what is to be done with the open-top [gondola] cars built before 1964. They come with sealed-off and unsealed side doors. Which should the number be in the first case, 600 or 604? It's not clear.

The model 12-1000 gondola car has doors, but the upper bolt is welded shut, and they don't open. Apply 600 or 604?

Many flatcars adapted for freighting timber are found in operation. In an appendix to the aforenamed illustration book, characteristics are indicated for them that are different from those of the timber carriers which come to us. What should be written, 400, 404 or some other number?

There is yet another directive--Put number plates on gondola cars built at the Ural Railroad Car Plant before 1976. But excuse me! They come with both wooden and metal siding--smooth or corrugated. Which are being talked about in the directive? Again, it's not clear.

In general, the impression is gained that the specialists in the Railroad Cars Main Administration, who participated in the preparation for renumbering, do not know clearly, even themselves, the makeup of the rolling-stock fleet.

For example, there remain in operation very, very few cars with braking platforms. They sent to us at the repair shop a bunch of control tags for gondola cars with braking platforms and a closed floor put out by the "Zhdanovtyazhmash" ["Zhdanov Heavy Machinery"] Plant. Personally, I have never encountered the likes of these during 20 years of work in transportation. My colleagues have not seen them, either.

Even such a situation, when a new number might be required, was foreseen. In an instruction, in black and white, it is written that the chief of the accounting and bookkeeping department will issue it by telephone, and the appropriate control tag will then be sent to the enterprise. I don't know how it is on the other roads, but for us on the October Road, they don't provide a number by telephone. Wait, they say, we'll send it. Otherwise, confusion will result. Well, we are waiting....

Because of all this confusion, cars readied for freighting are standing idle at our repair shop, and we don't fall within the norms for idle time and are not fulfilling the plan.

12319
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RAIL SYSTEMS

PLANS FOR NEW MOSCOW RAIL CENTER

Moscow SOVETSKAYA ROSSIYA in Russian 19 Jul 85 p 6

[Article by S. Taranov under the rubric "Moscow Report": "Railroad Station of Stations"]

[Text] Several years ago, Moscow Genplan [General Planning Committee] Scientific Research and Design Institute specialists began to look for the site of a new "gateway" to the capital. The architects examined dozens of working proposals and six main alternatives before they decided: It is to be the Yuzhnyy [Southern] Transportation Complex (technical station [service yard] and railroad station) in the vicinity of today's Kalinin and Bittsa Stations of the Pavelets and Kursk Lines. Here, however, the question arises: Why have two parts of a single complex been located on different railroad lines and 6 kilometers apart?

"We have planned not simply a railroad station, but a passenger complex unique in scale," says P. Sobolev, director of the institute "Mosgiprotrans" ["Moscow State Planning Survey Institute of the Ministry of Transport Construction"]. "In the near future, the railroad station problem in Moscow will be solved. Not long ago, the renovated rooms of the Belorussian Station were opened; in a year and a half, reconstruction of the Pavelets Station will be completed; another 5 years, and the Kazan Station will become twice as large; and there are plans for reconstructing the Yaroslavl...." All of this will add the so necessary conveniences for passengers. But how will it be with servicing the cars, preparing them for a trip?

"Car service now is functioning at the maximum workload. By no means does it always succeed in washing and making minor repairs on all of the many dozens of trains arriving in Moscow. And the reason is that the railroad stations' service yards have no room to grow--They are all in the center of the city. Meanwhile, in 20 years, more than a hundred other trains will be added to the present number. The technical [service yard] center of the Southern Complex also must take care of these, and its construction will begin first--probably already by the end of the 12th Five-Year Plan."

Ya. Broytman, chief project engineer, tells us what the center will be like:

"The service yard will be located in the vicinity of the Kalinin platform on 250 hectares of property. In effect, it will be a huge industrial enterprise without counterpart. And the point here is not just in its dimensions. Consider only its ecological cleanness. For the first time, utilization of refuse from the cars will be accomplished at a garbage incinerating plant. A closed-loop water supply system will permit the saving of hundreds of times more water, and the whole array of cleaning facilities will allow no pollution of the environment. At the projected yard, the working conditions of the yard workers, whose occupational prestige is extremely low right now--people are working year-round in the open air, often with no mechanization at all--will be much better."

The railroad station, itself, will be erected in Bittsa, 25 kilometers from the center of Moscow. Is that convenient for the passengers?

"According to present standards, no," continues Ya. Broytman. "However, the Southern Complex cannot be thought of in isolation from the capital's future plans. By that time, we shall come to perceive Moscow distances differently. The city is leaving the confines of the circumferential road and, already during the 12th Five-Year Plan, will begin settling the Butovo area. 600,000 people will live there."

"The Southern Complex will be located 2.5 kilometers from the 'Prague' metro [subway] station. It will suffice to extend it one more stage, and the subway will come right into the passenger-complex building. The letter 'M' is already on the project engineers' rough drafts. There, too, are underground passages connecting the station with the platforms. It will be possible to go directly to a train without meeting those arriving."

"At the moment, it is difficult to say specifically what amenities the Southern Complex will offer, but its design parameters will permit it to accommodate any service facilities and avoid the chronic illness of the present railroad stations--crowding and congestion. Without interfering with one another, 12,000 people will be able to be in the Southern Complex rooms at the same time. Next door, an intercity bus station (the Moscow-Kharkov expressway skirts the entire complex), a hotel for 2,000 occupants and a shopping center will be constructed."

And the last question: Will not so huge an enterprise swallow up the summer-cottage settlements? "There are no summer cottages on the site of the future complex. The Bittsa settlement will 'move' to Butovo; and residents of the villages of Petrushino and, in part, Fedyukovo, which is next to the Kalinin platform, will receive new apartments."

The new complex probably will be accepting passengers and trains in the second half of the 1990's.

12319
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RAIL SYSTEMS

RAIL CARGO LOSSES DUE TO SPILLAGE ASSESSED

Moscow PRAVDA in Russian 12 Jul 85 p 2

[Article by Vasiliy Parfenov under the rubric "In the News of the Day": "What Fell off the Cart...."]

[text] It is especially appropriate, during these summer months, for workers engaged in transporting freight to recall the well-known proverb, "What fell off the cart is lost." With the approach of cold winter weather, traffic in coal and metallic ores grows. Summer--This is a time of hard work on building sites, which require much cement, sand and gravel.

Unfortunately, with growth in the transporting of bulk granular freight, the losses of it also grow. What kinds of losses are they? The Moscow institute VNIIZhT [All-Union Scientific Research Institute for Rail Transport] appraises the total losses at 860 million rubles; and, if considered by weight, 20 million tons. What is more, this total of losses is within USSR Gossnab [State Committee for Material and Technical Supply] permissible norms. In practice, even more is lost. This is how much falls off our common cart!

The question naturally arises: How can these losses of resources on the way be reduced? Indeed, over 50 million rubles are spent annually, just in cleaning spilled coal, ore and other freight off the tracks. First of all, it is necessary to increase the responsibility of transport workers for preserving freight.

V. Goncharenko, Ukrainian Minchermet [Ministry of Ferrous Metallurgy] transportation administration chief, analyzed two railroad regulations: The first was effective from 1935 to 1964, and the other from 1964 to date. In article 67 of the first regulation was written: "The railroad bears full responsibility for preserving the freight accepted for shipping from the moment of the freight's acceptance for shipping until its release to the consignee...." Here, the client released freight to the road, and the road accepted it, by weight. And here is the analogous, 53rd, article of the regulation now effective: "Upon release by the shipper and acceptance by the railroad of freight being shipped in bulk, in granular form, in liquid form and in containers, the freight's weight must be determined and indicated on the bill of lading." Article 54 explains: "Determination of the weight of freight...is done by the shipper in all cases."

But, if the shipper does the weighing, then only he is answerable for losses on the way. So the shipper and consignee of the freight argue with each other, although the freight was spilled on the way. Thus the railroad workers, by means of correcting the right article in the previous regulation, have escaped accountability for preserving freight during its shipping.

And, once this accountability is gone, there is no motivation to keep the cars in good condition, either. There are cracks and gaps even in the new open-top [gondola] cars, engineer V. Rastrygin writes to PRAVDA from Dnepropetrovsk, and they reach 7 millimeters. After the repair of cars in a repair shop, gaps up to 10 millimeters are permitted; and, in fact, cars with gaps up to 13 millimeters very often run the rails. But much granular freight--concentrated ores, bits of coking coal, ground fluxes, bauxites and so forth--can leak out through such cracks. And, you know, such granular freight amounts to a billion tons in the national economy.

How, then, to transport this billion? MPS [Ministry of Railways] workers, in working out the technical terms for shipping similar freight, oblige the shippers to seal up structural cracks in the gondola cars. Of course, miners and metallurgists may, in addition to mining coal and smelting metal, take upon themselves both the routine and major repair of cars. Not infrequently, this is done, too. But maintaining the rolling stock in good condition is chiefly the concern of MPS car repair services.

The goal, both of transport workers and workers in other national economy sectors is one and the very same thing: to give the consumer, precisely on schedule and in full measure, all ordered products. And there is one more task--to preserve to the kilogram that which is obtained by labor. And no departmental instructions and regulations of any kind should be a hindrance to this.

12319
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RAIL SYSTEMS

MORE AC INDUCTION TRACTION DEVELOPMENT URGED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 22 May 85 p 2

[Article by I. Isayev and Yu. In'kov, doctors of technical sciences and professors of the MIIT (Moscow Institute of Railroad Transportation Engineers) and A. Solodunov, chief engineer of the PO REZ (Riga Electric Machinebuilding Plant Production Association) under the rubric "Technical Progress: Reserves of Acceleration": "Depends on the Client"]

[Text] Not long ago a well-known foreign firm announced the development of a fundamentally new electric locomotive with alternating current induction traction motors. The advertisement praised in every way the merits of the new-born. The firm invited potential buyers to public showing, including, particularly persistently, Soviet specialists.

Trade is a good thing. But a buyer at a public sale watches over his interest. It does not seem a bad idea to him to look inside the commercial wrapping: Is the commodity offered so unusual? In our case it was clear from the first glance: it turned out that the praised novelty was far from new. In this connection the promotional message acquired a particular meaning for us.

An electric locomotive with induction motors was developed for the first time in the world in our country nearly 20 years ago. The advantages of new traction compared with traditional electric locomotives with direct current commutator motors were proven during its testing. The machine's capacity increased approximately 1.5-fold with the same clearance gauges and expenditures for repairs and technical maintenance should have reduced by 20-40 percent. The flat characteristics of induction motors increase the rail grip of locomotive wheels by approximately one-fourth, which makes it possible to conduct much heavier trains.

In general, an ordinary obstacle for such an idea had cropped up here: it did not entirely fit into the framework of existing overall technical level of production. More modern power semiconductor devices and capacitors and elements of integrated and microprocessing equipment were needed for its complete realization on an industrial scale. Since it was impossible to overcome these objective difficulties straight off, the idea was taken to a siding, where it, of course, gathered strength in scientific research and testing and experimental work. However, in essence, this was a movement without a movement. After all it is

clear that regardless of how much maneuvering one makes on a siding, one cannot go beyond the station. The idea had to prove repeatedly that which has already been proven: its right to the main line.

Finally, a commission of experts, which was organized on the initiative of Yu. Nikitin, deputy minister of the electrical equipment industry, came to an unanimous conclusion about the unquestionable prospects of the new traction. It seemed that needed paths were opened. In 1979, according to a joint decision of the Minelektrotekhprom [Ministry of the Electrical Equipment Industry] and the MPS [Ministry of Railways], a sectorial scientific and technical laboratory was established at the Moscow Institute of Railroad Transportion Engineers (MIIT), which was aimed at studying the problems connected with the development of new electric rolling stock, particularly of metro railcars. Three years later, according to instructions of the minister of the electrical equipment industry, the laboratory together with specialists of the Riga Electric Machine Building Plant Production Association, began scientific research work aimed at developing alternating current mainline electric trains. We must add to this that at different times some other institutes and enterprises also began solving similar problems.

What do we have today? Original developments in the field of developing frequency converters and control and regulation devices are protected by many authorship certificates for inventions in the laboraroy of the Moscow Institute of Railroad Transportation Engineers. A stand for testing electric drives with induction motors has been developed at the Krasnaya Presnya Depot. Assembly of equipment is nearing completion and provisions have been made for a trial start-up of a simulated model of a new electric drive at the Riga Electric Machine Building Plant Production Association. Associates of the Leningrad Institute of Railroad Transportation Engineers together with workers of the local metro, the Plant imeni Ye. I. Yegorov and the Dinamo Production Association have developed and are now testing a simulated metro railcar.

But all of this does not gladden. On the whole, the leading positions, which we have occupied in the field of developing new rolling stock, have been lost. The most distressing is the fact that we did not lose in science but in practice, for theoretical research fulfilled in our country is of high scientific level. But implementation of such major ideas requires particularly efficient organization and coordination of all work. However, this is precisely what we did not have and, unfortunately, still do not have.

Back in 1976, the GKNT [State Committee for Science and Technology] pointed out the necessity of preparing a special-purpose comprehensive program aimed at developing varied purpose electric rolling stock with induction traction motors. Such a program was developed only with reference to electric and diesel locomotives. It is being implemented extremely slowly. There is no such program so far for electric trains and metro trains. There is also no leading organization to coordinate this work. It is being basically conducted by virtue of the initiative of individual workers of the Ministry of the Electrical Equipment Industry, the Ministry of Railways and railroad transportation VUZs. This also explains to a great extent why work has not been planned so far with regard to

developing long-range induction traction motors for metro electric trains and railcars. In essence, there is even no unified opinion as to which motor is more promising--the induction or synchronous one. It cannot be otherwise: the criterion of truth is practice.

In the meantime some facts testify not so much to the expansion of research as to its curtailment. Thus, for example, in the All-Union Scientific Research, Planning and Technological Institute of the Dinamo Production Association, to which the laboratory of the Moscow Institute of Railroad Transportation Engineers is now assigned, the work aimed developing metro railcars with induction motors is not being planned for the forthcoming five-year plan, and the institute has been oriented toward the output of direct current motors. Admittedly, the Novocherkassk Electric Locomotive Building Plant in cooperation with a Finnish firm is developing an electric locomotive with induction motors. But if one looks at the division of work, then it becomes clear that the entire basic electrical part of the experimental model of this electric locomotive will be made by foreign specialists. That is,the potential of our science again remains outside practice.

What is the main reason the situation has developed? In our opinion, it is, first of all, owing to an insufficiently active position of the Ministry of Railways. The fact that financing of all work is carried out by the Ministry of the Electrical Equipment Industry, and a client only waits for what comes out of it, speaks for itself. And besides in the development of a special-purpose comprehensive program for metro electric trains and railcars the client was obliged to play a decisive role. At the same time, the State Committee for Science and Technology was unable to insist on fulfillment of its own instructions.

Today, in order to solve the problem there is only one way: it is necessary, first of all, to shift from solving individual tasks, which are hardly connected with each other, to programmed special-purpose planning of all work.

Probably, there is sense in limiting the subject matter of mainline electric trains of the laboratory of the Moscow Institute of Railroad Transportation Engineers and to organizationally assigning it to the Riga Electric Machine Building Plant Production Association. It is also rational to connect to work the Tallinn Electrical Equipment Plant imeni M. I. Kalinin Production Association, which has tremendous experience in developing traction static converters. The All-Union Electrical Engineering Institute imeni V. I. Lenin could make its presence felt in power semiconductor equipment. Taking into account that 90 percent of railroad passengers are transported by commuter trains, apparently priority significance should be attached to work in this direction.

Naturally, all of these proposals do not cover the problem as a whole. A comprehensive program is needed for this. In our opinion, its development cannot be put off any longer. Utilization of induction traction motors will make it possible to solve the problem of developing powerful electric locomotives for the Baykal-Amur Mainline and reliable commuter trains and metro railcars and to sharply raise railroad transportation efficiency. Under

conditions of stable growth of cargo turnover and passenger transportation, the task of developing new and more efficient rolling stock acquires most important state significance. We have all means for solving it within the briefest possible periods. One thing is needed for this: to take out the idea, which has justified itself, to the main line and to give it the "green light."

9817
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RAIL SYSTEMS

BAM ELECTRIFICATION DELAYS PERSIST

Moscow GUDOK in Russian 18 Jun 85 p 2

[Article by P. Petrusenko, chairman of the leading people's control group of the Lenabamstroy [Lena Baykal-Amur Mainline Construction] Trust, and B. Udalov, deputy chief of the trust's production department and people's controller: "Oh, These Objective Reasons"]

[Text] Severobaykalsk--The Severobaykalsk Division of the railroad has new powerful 3TE10M diesel locomotives at its disposal, but the weight norms of trains here are comparatively small.

Everything is very simple: the shape of the route on the BAM [Baykal-Amur Mainline] has drawn-out 20,000-gradients. Even powerful diesel locomotives are unable to surmount them with trains of considerable weight.

There is one way out. To change to electric traction as soon as possible, which is provided for by the 1985 plan. The leading people's control group of the Lena Baykal-Amur Mainline Construction Trust has checked how this most important assignment is being fulfilled.

This year, the Lena Baykal-Amur Mainline Construction Trust will have to commission a section from the Yakurim Station to the western portal of the Baykal Tunnel. It will be necessary to build six traction substations and to electrify 285 km of the line. Construction and installation trains are conducting electrification of stations and lines for a second year, more than 3,000 supports have already been installed, that is half of the entire requirement. Seems as if everything is progressing well.

But this is only at first glance. In reality only four lines out of 33 stations, sidings and lines were turned over for catenary system assembly. It is impossible to begin assembly of the catenary system--there are no prepared anchoring sectors.

To an uninitiated it seems that all supports of a catenary system are the same: reinforced concrete and round cross-section ones, and perhaps slightly higher than the ordinary ones only in the western sector of the Baykal-Amur Mainline.

In reality supports differ not only and not so much in length as much as with regard to loads which fall on them. Altogether five types of supports are used.

And if, let us say, there are none of those which can withstand a load of 11.3 ton-meters at a sector where supports of other loads have been completely installed then a catenary system cannot be assembled.

There is still another important circumstance--the features of climatic and geological conditions of the Baykal-Amur Mainline. Therefore, supports adapted to the north are made: with the use of special steel reinforcement and high brands of cement.

Supports are installed on rocky ground as well as on marshy ground, in bogs, where it is impossible to dig foundation pits in summer since they drift around right away. Such foundation pits are excavated, as a rule, in winter, when the ground is frozen solid to a depth of up to 3 m and is thawed out with the aid of bonfires. It is labor-consuming work and is much more difficult than, for example, excavating foundation pits in rocky ground with the aid of explosions.

For unconditional commissioning of the electrified western sector of the Baykal-Amur Mainline, in January all stations and lines were distributed among construction and installation trains of the Lena Baykal-Amur Mainline Construction Trust and electrical assembly trains of the Glavtranselektromontazh [Main Railroad Electrification Administration]. In the first quarter, subdivisions of the trust were supposed to make 11 lines and stations available for assembly, though they could have done more. However, there is a shortage of high-load supports: 350 for lines, 120 for stations and sidings and 430 for traction substations.

High-load supports adapted to the north are supplied by the Talovskiy and Shimanovsk Plants, which are under the jurisdiction of the Dal'transtrom Trust [not further identified].

Out of the overall number of 1,700 supports only 570 were delivered by plants of the Glavstroyprom [Main Administration for the Manufacture of Structural Parts and Units] against the first quarter, including only 59 out of the 770 SKM 9 and 11 type supports. The Talovskiy Plant and the Shimanovsk Construction Industry Combine have not delivered a single support...

At the Talovskiy Plant the lag is explained by lack of high brand cement and poor condition of equipment. Shimanovsk workers allege that this is a new type of production for them and that they are only mastering it so far. This is also confirmed by Yu. Semenov, manager of the Dal'transtrom Trust, in his interview "Traditions of Workers' Relay Race" (GUDOK 26 February).

The reasons put forward are "objective:" to replace worn out equipment, especially since it is still not available at a plant, or to master new production is not a simple matter. The Angarsk Cement Plant, which supplies high brand cement, is not under the jurisdiction of the Mintransstroy [Ministry of Transport Construction] at all: it may supply, and it may not supply...

This is the way it is. Out of these comrades, as the saying goes, you won't get anything.

But here is a question addressed to Comrade Semenov and supervisors of the Talovskiy Plant and the Shimanovsk Combine: Perhaps electrification of the Baykal-Amur Mainline should be canceled? Why did they start talking now about their objective "sores," before commissioning of the projects?

Last year, the Dal'transtrom Trust failed to deliver to the western sector of the Baykal-Amur Mainline 1,549 supports, 500 m^3 of PST-100 panels and 265 m^3 of wall panels for traction substations. The debt was not compensated this year. During the first 2 months alone, the Lena Baykal-Amur Mainline Construction Trust sent nearly 10 telegrams to Comrade Semenov; Comrade Vasil'yev, chief of the Main Administration for the Manufacture of Structural Parts and Units; and supervisors of the Ministry of Transport Construction. Everything was in vain.

But time goes by. It is feared that close to 600 foundation pits, which were excavated with incredible difficulties during 45-degree frosts, will drift and turn into 4 m deep traps filled to the brim with liquid mass. The stability of the subgrade will be violated, which in turn will lead to its subsidence and restriction of train speeds.

Various organizations have failed to supply the Lena Baykal-Amur Mainline Construction Trust for the electrification of the western sector and construction of traction substations with thousands of supports, anchors and foundations and a great number of panels, slabs and other reinforced concrete structures.

The periods for turning over traction substations for assembly is August and for assembly of lines is September. Their assembly will be conducted during subzero temperature and builders of the Baykal-Amur Mainline have a right to expect that supervisors of the Ministry of Transport Construction and supplier-plants will adopt radical measures so that builders of the western sector would receive the entire list of all materials in full volume and as soon as possible.

There are also some other questions which are hampering electrification. Up to now the Baykal-Amur Mainline has failed to allocate to the trust four diesel locomotives with locomotive service brigades for installation trains. The management of the Severobaykalsk Division simply cannot solve the question with regard to daily provision of "windows" of at least 6 hours duration for the operation of installation and assembly trains. They are frequently frustrated because of the train situation and other reasons, and even if provided, they are shortened to 1.5-2 hours. Taking into consideration the fact that the length of lines here is from 30 to 50 km, there are hardly enough "windows" for builders to get to their place of work and to return... back.

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RAIL SYSTEMS

DELAYS IN PRODUCTION OF 8-AXLE RAILCARS

Moscow SOVETSKAYA ROSSIYA in Russian 14 Jun 85 p 2

[Article by Candidate of Technical Sciences A. Glovatskiy under the rubric "Science and Production Progress": "The Lost Railcar"]

[Text] Today, perhaps only railway workers of the older generation remember two-axle railcars, which rolled on main line railroads during the thirties. The young country needed to transport more and more cargo, but the railway transport was unable to cope with the load. Scientists argued: Four-axle railcars are needed. Seemingly nothing could be easier: Add another two pairs of wheels--an end to all discussion. However, the innovation had opponents, who proposed another solution of the problem: Attach additional railcars to a train. To be sure, the benefit here was an imaginary one: "Stretching" of trains would have required a complex and expensive station reconstruction. Time has convincingly proven the correctness of scientists.

Only 20 years have passed, but they already calculated, plotted and checked for soundness the designs of an eight-axle railcar. Events have again made it necessary to increase railway transport capacities. The results of the search were successful, and in 1965 the State Interdepartmental Commission allowed series production of a new gondola model, which was able to take on considerably more cargo than its predecessor. Now a question: Have you often seen eight-axle railcars on the main lines?.. No.

What happened, where did the delay on the path of new equipment occur? Perhaps the replacement of the cargo railcar pool seemed disadvantageous to specialists?

"On the contrary, very advantageous," asserts L. Shadur, doctor of technical sciences and professor of the Moscow Institute of Railway Transport Engineers. "This would have made it possible to increase the carrying capacity of railroads by 20 percent and to considerably reduce transportation costs."

The innovation's high efficiency was also confirmed in the Scientific Research Institute of Complex Transport Problems of the USSR Gosplan and in the All-Union Railway Transport Scientific Research Institute. According to their calculations, the state's gain from a change to eight-axle railcars would have amounted to at least R2 billion a year. A high-sounding figure! Thus, the scientists are on

the side of new equipment. But what do the operational workers think about it, does the MPS [Ministry of Railways] need eight-axle railcars? Deputy minister B. Nikiforov dispelled all doubts:

"They are needed. Needed very much. The replacement of four-axle railcars, which have become obsolete, could have been carried out some 15 years ago. Every lost year results in colossal losses for the country's national economy."

I must say that in undertaking the preparation of this material, I assumed that the basic reason of delay in the output of new railcars--as before, during the thirties--was an error in opinions and diverse reasoning, and thought that I would constantly encounter obstacles, argue and try to prove... But here is the paradox: there are no opponents to the new railcars, everyone is "for," but the matter is making no progress.

The necessity of producing eight-axle railcars was noted at the 25th CPSU Congress and decisions were adopted by the Gosplan, the GKNT [State Committee for Science and Technology] and the Collegium of the Ministry of Railways... In 1976, the Mintyazhmash [Ministry of Heavy and Transport Machine Building] and the Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises] were given an assignment to ensure commissioning at the Abakan Railcar Building Plant of production capacities for the output of eight-axle railcars. Many enterprises of the country, expecting that "heavy trains" were about to appear, have built car dumpers for the new transport and have conducted modernization work. But, alas, eight-axle railcars are not rolling from Abakan.

Who is to blame? I have spent several days in search for an answer to this question. G. Nazarov, first deputy chief of the Planning and Capital Construction Administration of the Ministry of Heavy and Transport Machine Building, is also for eight-axle railcars with both hands, but..."allocations are needed before building, but the Gosplan is not allocating funds."

Well, the address has been named, so I turn to the USSR Gosplan. With A. Rostovtsev, chief of the Railway Transport Subdivision, we have complete mutual understanding. Yes, it is written in plans, he agrees, yes, the construction project is getting nowhere...

"But we have nothing to do with it," Rostovtsev adds. "We allocate funds for the development of the entire sector, and it is clearer to the Ministry of Heavy and Transport Machine Building what to build and what not to build."

Everything is not so simple after all! D. Zotov, chief of the Gosplan's Transport Department, also did not contribute clarity in solving the question.

"We are in the role of a client. We have to ask the Heavy, Transport and Road Building Machinery Department to build railcars."

A conversation was also held with this department's chief O. Pashchenko. He acknowledged the fact that new railcars are needed and reluctantly agreed that this work has dragged out. The conversation ended when we came to the

subject as to who was to blame. Oleg Aleksandrovich suggested seeing someone higher, the deputy chairman of the Gosplan, who has the curatorship of the department...

At the end of the week I was in the Ministry of Heavy and Transport Machine Building again. Deputy minister L. Popov asserts categorically: "The Gosplan did not allocate money for construction of the Abakan plant in the 11th Five-Year Plan, what will happen in the 12th Five-Year Plan is unknown so far."

There is no need to list all officials with whom I have met. I will say only this: The search for the one who was to blame was fruitless. There are departments and ministries which are connected with the production of eight-axle railcars, but I could not find people, not even a department wholly bearing the responsibility for failing the important state task. Folders, which were thoughtfully prepared for a case such as this, were opened before me everywhere. "Inquiry"--"Response," "Incoming"--"Outgoing." A mass of documents--and all for the purpose of a person or ministry being able to hide behind a paper wing, to justify oneself by using objective reasons.

And here, if one has the moral aspect in mind, the features of character are visible. In the course of preparing the material I had a chance to talk with scientist I. V. Kovalev. Former people's commissar, and later minister of railways--it is with his participation that replacement of two-axle railcars with four-axle railcars was carried out. I ask the veteran: Why did it take only a few years to replace the cargo railcar pool at that time, but the red tape with the eight-axle railcars has been dragging on for more than 20 years?

"Boldness--this is what's lacking in present supervisors, who owing to their position should be regarded as responsible people," Ivan Vladimirovich said. "A feeling of responsibility for a matter of common concern."

Probably, the answer to the question is in this. After all, no one was against the innovation, but at the same time no one has taken serious steps aimed at its implementation. In essence, if one considers it, many good ideas have been destroyed precisely by this--the fear of adopting an important technical decision, a desire for a tranquil life. That is why almost any innovation gets into a "whirlpool" of examinations, coordinations and confirmations for a long period of time...

Railway workers are attempting to solve the cargo hauling problem in their own way: by dispatching heavy trains weighing 15,000, 17,000 and even 20,000 t. Records are fine, but no mass change to super trains is expected--an excessively expensive reconstruction is required so that multikilometer trains could "blend in" in the size of stations. Therefore, the question remains: When will the green semaphores finally light up on the path of eight-axle railcars?

9817
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RAIL SYSTEMS

PROMZHELDORTRANS BLAMED FOR INDUSTRIAL SPUR LINE PROBLEMS

Leningrad LENINGRADSKAYA PRAVDA in Russian 19 Jul 85 p 2

[Article by A. Potapenko: "The 'Striped' Rail"]

[Text] In checking the condition of sidings to enterprises, a railway worker from the Neva rail freight station discovered that several meters on the approach to the "Bumaga" Association were covered by the lake that had overflowed. A normal situation in the spring or after a heavy downpour. He reported this without delay to the station and declared that the "line was closed."

And three organizations began urgently shuffling official papers on the spot to ascertain who is to remove the "natural disaster." The most surprising thing was that each one had enough grounds...to undertake nothing.

It appeared that this was the direct responsibility of the Industrial Rail Transport Association--"Promzheldortrans." It was established about 8 years ago to become the intermediary between the October Railroad and its clients, to assume all responsibilities for performing the shunting and freight handling operations on the sidings of industrial enterprises. In other words, for taking care of it completely. But so far it hasn't turned out that way. At one time, "Promzheldortrans" refused to take responsibility for lines that were in unsatisfactory technical condition.

"Our entire line is now 'striped'," noted N. G. Shukevich, deputy chief of the Neva Station, crosshatching short segments on the diagram of sidings. "The railroad is responsible for part of it, 'Promzheldortrans' is responsible for another part, and the enterprises answer for a third part. It turns out that there are three custodians for each spur line. And if there is some disrepair, it takes a long time to look for the authority required."

The water remained over the track for several days... Telephone messages were flying to all the organizations. But five persons who spent 3 hours digging out two runoff trenches proved to be sufficient to overcome the emergency...

Unfortunately, this story is not a specific detail, an annoying incident of an accidental nature, but a link in a long chain which originated on the day that the Industrial Rail Transport Association was established. Today it has proved to be unable to perform the duties with which it has been entrusted.

"It looks as if the intermediary organization has been interested in only one thing," N. G. Shukevich shared his impressions, "ensuring that cars are not standing idle on its lines. A commendable objective. It is being achieved by peculiar methods, however. Let's assume many hopper cars with cement have accumulated on the 'Promzheldortrans' lines waiting to be unloaded. After all the times are up, the dispatcher tells us: the cars are in disrepair and the hatches haven't been cleaned off--we cannot unload them. Take the idle cars away."

The reason, of course, is important. All the same, it is not enough to write off the layover of cars to the account of the station, which is not at fault for the unsatisfactory condition of the rolling stock. Moreover, by counting on receiving the cars in good condition, they also are damaging them in the "Promzheldortrans." A recent check in one of its subunits, the Leningrad - Ladoga Industrial Rail Transport Enterprise (PPZhT), showed that brigades are not cleaning the hatches of cement after unloading, and they are breaking up the flooring and warping the sides with bulldozers and power shovels. Leftover sand "as deep as an index finger"--not a scientific measure, but a convincing one--has been discovered in 23 of the flatcars inspected.

Thus "Promzheldortrans" has not been able thus far to cope with its basic task--reduction of cars' layover time on enterprises' sidings, and in individual months the layovers exceed the normative periods of time by one and a half times as much. Freight is being shipped and delivered with schedule violations from the stations.

It seems that recently changes for the better have taken place at individual industrial rail transport enterprises. But to be frank, the positive steps are explained to a large extent by the fact that a considerable part of their responsibilities have been assumed by client-enterprises. Ones such as the Combine of Thin and Technical-Grade Cloth imeni Telman, the "Bumaga" Association, and the ZhBI-5 plant [reinforced concrete products plant No 5] of the "Barrikada" Association. Car layovers on their sidings have been reduced significantly.

The work of the Leningrad-Ladoga Industrial Rail Transport Enterprise also is being performed partly by the planning and construction association for large-panel housing construction of the DSK-2 [housing construction combine No 2] in the "Parnas" industrial zone.

"As long ago as January we organized an 'initiative group' of three persons which every day--both on workdays and holidays--handles the unloading of cars coming to us," M. N. Varnavitskiy, the chief dispatcher, said. " One of the engineers or managers of our enterprise also is on duty with them. Of course,

it is not so simple to tear skilled personnel away from the workplace and compel them to perform the work of freight handlers. It is an emergency measure, but we have reduced the excessive layover of cars to zero over the past months."

The clients' striving to help the work of the "Promzheldortrans" is understandable: in the final analysis, disruption of the shipment plan hits them themselves. "Promzheldortrans" is insured by "preferential" points in the agreement, which regulates the interrelation of workers in associated fields. For example, in accordance with it, enterprises are obliged to allocate persons to assist the PPZhT in two cases: when a frozen shipment arrives or the number of cars to be unloaded exceeds the norm. And if such assistance is not rendered, the PPZhT simply writes off the entire fine to the consignees without their consent.

"When there are excessive layovers permitted through the fault of the PPZhT," V. F. Kuznetsov, deputy of the ZhBI-5 plant of the "Barrikada" Association, said, "its representatives, as a measure of imposing fines by the Neva station, frequently predate the records of cars' delivery and cleaning. On the basis of them, the PPZhT takes money from the enterprises without prior consent. And we have to apply for arbitration. Normative documentation is being very poorly handled at the Leningrad-Moscow PPZhT, and cases of real layover are being concealed. As a result, performance and labor disipline is poor. Not long ago, I had to call out the militia operations group, which confiscated 40 liters of wine from the freight handlers.

Under the existing situation, the work of the "Promzheldortrans" resembles endless "tug-of-war" games, where the interests of all three departments seldom coincide. Contractual obligations bind them so insecurely that it is difficult to achieve efficient cooperation, and no footholds with the aid of which implementation of these obligations could be checked are found in them. And if there is no efficient verification, there cannot be firm performance discipline, either.

It is not by chance that "Promzheldortrans" has not been able to strengthen its authority as a reliable partner in transport shipments. Today a dozen enterprises may be cited which prefer, with all their transport disorders, to do business with the railroad without the participation of a specialized intermediary organization. Obvious testimony of distrust of their partner.

The managers of "Promzheldortrans," which today includes five industrial rail transport enterprises, believe not without foundation that many troubles stem from the poor material and technical base. The obvious lack of modern freight handling facilities is making itself felt. Incidentally, this was also the sore point during the period that the association was established. In 1977 the system possessed 25 wornout locomotives and several primitive loaders. There was no maintenance base. Not much was changed for 8 years. As before, there is no place to repair diesel engines and maintain equipment. In the words of V. I. Bekh, chief engineer of the association, not one large production building was built during these years.

The period of buildup in the association was delayed too long, and the habit of waiting for outside help was firmly reinforced here. Some must repair locomotives for them, others should maintain freight handling equipment, and others must allocate persons when the plan requires. But as is well known, nothing ventured, nothing gained.

The "Intensification-90" program formulated in "Promzheldortrans" somehow provides a basis for optimism. Through the association's funds alone it is being planned to allocate 7 million rubles for new construction and funds are being allocated for mechanizing freight handling operations, which should lead to the release of workers. At present, practically the entire increase in production volume is being achieved not through increased labor productivity, but by means of increasing the number of persons.

Serious reorganization is necessary in the work of "Promzheldortrans." Until it takes place, interruptions in the transport production line will continue on "striped rails."

8936
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RAIL SYSTEMS

'SANDWICH' REFRIGERATED CAR PRODUCTION DELAYED

Moscow GUDOK in Russian 4 Jul 85 p 3

[Article by correspondent B. Kolesnikov from Bryansk and Moscow: "The 'Sandwich,' an Aging Model"]

> [Text] Acceleration of scientific and technical progress in rail transport is inseparable from the updating of technical facilities, including rolling stock. As far back as the 1960's a new term defining a promising type of refrigerated car--"sandwich"--appeared in refrigerated car manufacturing.
>
> "In 1980 we must produce the 'sandwich'--an experimental model of a unit with which future refrigerator technology is linked to a considerable extent--to order for the MPS [Ministry of Railways]."
>
> This is what M. Berenshteyn, chief designer for railway car manufacturing of the Bryansk Machine Building Plant Production Association, told our correspondent. The editorial staff decided to inquire about the fate of the experimental model.

I saw the "sandwich" 2 years ago on one of the sidings of the Moscow hub. From the exterior it appeared no different from its brothers in series production. Only a bright blue letter "S" on the body distinguished it from other refrigerated cars.

Let us recall briefly where its name comes from. The body of the car is prefabricated from panels--the roof, floor and walls. Polyurethane, a good heat insulator which gives metal high anticorrosive properties, is poured between the exterior and interior panels. The outer casing of a normal refrigerated car rusts in approximately 7 years. Its service life also is designed for this.

The "sandwich" railway car was built in accordance with the principle of panel housing construction through the efforts of collectives of scientists, designers, engineers and workers of the Bryansk Machine Building Plant, the

VNII [All-Union Scientific Research Institute] of Railway Car Manufacturing, the Ural branch of the VNIIZhT [All-Union Order of the Labor Red Banner Scientific Research Institute of Rail Transport], and the Vladimir VNII of Synthetic Resins.

Liquid polyurethane foam is poured into the "reinforcement" of the body. It froths. In hardening, the mass adheres tightly to the metal casing; there are no gaps and seams through which air, with moisture, could penetrate.

They promised a great future for the "sandwich" in its first steps. Here are its basic advantages: no maintenance for the body, and consequently, a long service life. Capacity increased by 10 percent. High constant heat insulation properties and airtightness. Less energy consumption to create the necessary temperature conditions. The experimental models of the "sandwich" passed the test successfully, undergoing operational testing on the country's eastern main lines. They completed scheduled trips with freight as part of ordinary RS4 [expansion unknown] sections.

Specialists of the two ministries concerned--the Ministry of Heavy and Transport Machine Building and the Ministry of Railways--have already calculated the economic gain which introduction of the "sandwich" would yield for a network of railroads. It turned out that it was considerable, but... years passed before the Bryansk machine builders turned out two experimental models of a hybrid refrigerated car with the aim of introducing the "sandwich" in stages. Their roof and floor were made in accordance with the new technology. The rest of the body's construction was left as before.

Such a version by now, in a period of reorganization of railway car production, may be accepted as transitional. It was even planned that the adjustment batch [ustanovochnaya partiya] of such cars would leave the shops of the enterprise at the beginning of the next five-year plan with the estimate that the plant would shift to series production of them in 1988. However, it is as far away from that event today as it was on the day that the first experimental car with the letter "S" on its corrugated side made its appearance on the rails.

In order to gain an understanding of the problems preventing introduction of the "sandwich" into mass production, I went to the All-Union Scientific Research Institute of Railway Car Manufacturing, where I met its director, Candidate of Technical Sciences A. Rechkalov.

"Our position as a scientific research center," the institute director explained, "is for the most expeditious introduction of a product which we have participated in developing. Practically all the complications of a technical and design nature attending manufacture of the new model of rolling stock have been overcome."

A subsequent conversation was held with E. Vasilyev, the chief engineer of the "Soyuzteplovozputmash" [All-Union Diesel Engine Construction and Track-Laying Machine Building Industrial Association] of the USSR Ministry of Heavy and .pa Transport Machine Building, which has jurisdiction of the Bryansk Machine

Building Plant Production Association. Learning the purpose of my interview, he immediately referred to the difficulties...

"In the BMZ [Bryansk Machine Building Plant] at present," he said, "they are setting up large-scale diesel production; it will occupy about 120,000 square meters. In the new building complex they will be turning out engines for main line diesel engines. This is well known in the Ministry of Railways. We do not have the means to renovate the railway car section as well at the same time. At present, it is a little early to talk about preparing capaci ies for shifting the "sandwich" to series production."

You will agree that this is a strange position. The railway workers are the customers: they need both diesels and railway cars. So we must look for ways to meet the demand. After all, this concerns technical progress in the field of refrigerator construction. The fulfillment of one of the points of the Food Program--preserving food products during shipment.

Unfortunately, the prospects for the "sandwich" today remain hopeless, as they were 7 years ago when it was built. You become convinced of this once again, after speaking with the chief engineer of projects for the Bryansk Machine Building Plant of the "Giprotyazhmash" [State Institute for Project Planning of Heavy Machine Building Plants], V. Barinov. Thus far this organization has not transferred technical documentation to the plant for manufacturing the "sandwich." The designers screen their inactivity with the fact that time periods for completing the project planning were not specified in the planning assignment.

And only one organization--the "Soyuzkhimplast" [All-Union Industrial Plastic Compounds Association]--is expressing readiness to begin mass production of the "sandwich."

"From our point of view--chemical technology, the problem of the 'filling' for the type 'S' refrigerated car-- has been worked out," says Ye. Volchkova, the chief technologist. "The Vladimir Scientific Research Institute of Synthetic Resins developed two compounds for pouring and spraying polyurethane foam. The ingredients exist for preparing the mixture. However, the section for combining the ingredients [uchastok konfektsionirovaniya] at the Bryansk Machine Building Plant has not been organized. Approximately 3,000 tons of polyurethane foam will be required to begin series production..."

So it is impossible, after all, to order funds for materials if there is no trace of the new production as such, and it is not known exactly when it will make its appearance.

"Will there still be a 'sandwich'?" I put this question to N. Shinkarev, chief of the Transport Department of the USSR State Committee for Science and Technology.

'There certainly must be!" he answered. "The 'sandwich,' which was developed in accordance with the scientific and technical program approved by our committee, meets current requirements demonstrated for refrigerated rolling stock. The resources exist for organizing its production at the Bryansk

Machine Building Plant of the Ministry of Heavy and Transport Machine Building. Although, as in any other new venture, specific difficulties arise. But they are entirely surmountable. The most important thing now is to coordinate the efforts of all the ministries and departments concerned which are responsible for developing and incorporating the new technology to produce the 'sandwich'."

The new refrigerated cars must come to take the place of the outdated models of traditional design more rapidly. In the opinion of specialists in the Committee for Science and Technology, opportunities for this exist at the Ministry of Heavy and Transport Machine Building. So what is holding things up? It is time to switch from hunting for objective reasons to explain the nonfulfillment of long-range plans for developing transport technology to finding the means for their most expeditious implementation.

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MARITIME AND RIVER FLEETS

LATVIAN SSR CREATES RIVER FLEET MAIN ADMINISTRATION

Moscow VODNYY TRANSPORT in Russian 2 Jul 85 p 1

[Article by V. Lushchevskiy, VODNYY TRANSPORT correspondent under the rubric "Navigation-85": "Marine Baptism"]

> [Text] A river fleet main administration, attached to the LaSSR Council of Ministers, has been set up in Latvia since beginning of January of this year.

Today in the Main Latvian River Fleet Administration's dispatchers' reports, references to trips made by those coast-hugging ships which visit seaports became commonplace. Among the harbors where the river transport workers take on or turn over their cargoes one can come across names like Tallin and Vyborg, Ventspils and Vysotsk....

The faring of the river transport workers beyond the republic's internal arteries and the development of this mixed waterway which extends all the way to the shores of Estonia, Kaliningrad and Lake Lodoga is one of the most dramatic signs of the times. And the marine baptism of the Daugava River water transport workers was caused primarily by the region's economic demands, and the increasing needs of local enterprises for a "small" fleet.

The Baltic region has always felt the scarcity of construction materials, the procurers and conveyers of which have long been, and remain, the river transport workers. And these are they to whom the construction industry enterprises turn with their needs for crushed rock, sand and building stone. And if these traditionally "river" cargoes formerly came for the most part from the local quarries and sand pits which were located along the banks and shores of Latvian rivers and lakes, then nowadays the ships are dispatched after them to more remote port centers, developing coastal sea routes in the process.

By way of an example, the stably loaded crew of the diesel-powered ship Boris Pustovoytov are pioneers of mixed river-sea navigation in this basin. This crew also makes regular trips to Vyborg, to Tallin and to Ventspils, invariably insuring a high level of efficiency in their transport work and accurately observing the obligations accepted on behalf of their clientele.

It takes a total of an hour and a half to load the ship with crushed granite in Vyborg. It takes on 1,500 t. With the availability of structurally convenient open holds, there is also no problem handling the ship in the unloading ports. In Riga the Boris Pustovoytov is readily docked at any berth at any time of day, her crew knowing from experience that their precisely organized procedures will permit the ship to be unloaded in the least possible time.

The work load of the Boris Pustovoytov on the mixed waterways depends here primarily on the availability of cargo. All the more since these same trips are made by another crew working on the ship Rizhskiy Zaliv, and this crew is always ready to engage in rivalry with their partners in competition.

Here, the experimental one-time run, which the Boris Pustovoytov also made to the Leningrad Oblast--to Lake Ladoga--is significant. The Latvian river transport workers had heard that the rock quarries and sand pits there had more construction materials than the transport workers could haul away and deliver. They decided to reconnoitre a way there, get to know their neighbors and offer their services.

The finely-crushed rock with which they filled the ship's holds turned out to be greatly needed by the river transport workers' permanent customers. They immediately handed in an application for new large-scale lots of this building material. And here, the entire matter depends on coming to a quicker agreement regarding the attendant organizational questions with the local quarries and sand pits, and with the port. Hereafter, this new run, which is a relatively long one for the Latvian Main River Fleet Administration, will cease to be experimental.

The diesel-powered ship Turinsk, which the Latvian river transport workers recently obtained, and which had previously belonged to the Latvian Maritime Shipping Company, was renovated so as to be suitable for these new runs. Since it is used exclusively for hauling bulk cargoes, a way had to be figured out to process the vessel quickly at river berths. The hold's square bottom complicated the crew's work: they had to scrape the cargo out of the corners with spades. The new owners decided to place steel inclines in the hold so that the entire cargo would collect within range of the grab-crane buckets. The manual labor has now been done away with. This veteran diesel-powered ship has shown itself in the best possible light in hauling the sand used in construction of the Novotallin Maritime Trade Port, and crushed rock from Vyborg to Riga.

The river fleet, which can operate on rivers and seas continues to be augmented in 1985. The seamen have already turned the diesel ships Roya and Gauya over to the river transport workers, thereby sharply increasing the freight turnover for the coast-hugging runs. A new Okskiy-class diesel ship, with a 2,000 t cargo-carrying capacity, and with a navigation area which takes in the river to the Gulf of Riga, is soon to be obtained.

The republic's Main River Fleet Administration is witnessing the gradual appearance of the skeleton of a workforce which has both the know-how and experience to work on these long runs. These diesel ships operate from March to December, which is normal for conditions in the Baltic area.

The river transport workers' overall contribution in the service of the construction industry is substantial: this year, the river vessels will transport no less than a quarter of all the materials needed at Latvia's construction sites.

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MARITIME AND RIVER FLEETS

DANISH-BUILT BANANA BOAT FOR LATVIAN SHIPPING COMPANY

Riga SOVETSKAYA LATVIYA in Russian 22 Jun 85 p 4

[Article by V. Freydman, chief of operational affairs, Latvian Maritime Shipping Company: "The Academician Vavilov, and Others", with an introductory statement by N. Glinchuk, and an afterword by V. Smetannikov]

[Text] Hull length--138 m, with a width of 21.5 m. These will be the dimensions of the Academician Vavilov, a new refrigerated banana boat. It is being built to order for the Soviet Union at the Aalborg Shipyard in Denmark. This vessel, which is earmarked for the Latvian Maritime Shipping Company, has been assigned a Class A-1 rating, which designates vessels having the highest level of automation. Latvian merchant shipping numbers three of these vessels among its ships.

This main ship has been named in honor of the Soviet geneticist, plant-breeder, geographer, founder of our domestic breeding program and one of the organizers of our country's agricultural science, Academician Nikolay Ivanovich Vavilov.

--N. Glinchuk,
SOVETSKAYA LATVIYA
stringer

We asked V. Freydman, chief of the Latvian Maritime Shipping Company's operational affairs to comment on our stringer's information. Here is what he said:

"The refrigerator ship Academician Vavilov will become part of this republic's merchant shipping fleet at the end of 1985. In the course of the current five-year plan period, our shipping company has obtained quite a number of new ships of various types, all equipped with the latest word in equipment, and built domestically as well as built to order for the Soviet Union at foreign shipyards. They include, for example, the tanker Georgiy Kholostyakov, built in Kherson, the diesel-powered vessels Kursk and Arvid Pelshe, both of which were built on Polish building berths and the Kashira, a ship we obtained from Finland. A special feature of this last ship is that it was designed to deliver chemical cargoes and to operate in challenging arctic, and thus is of the so-called reinforced ice class.

The hauling of chemical cargoes is a specialty of the diesel-powered Aleksandr Kaverznev, which became part of our fleet just this year. This ship bears the name of the famous Soviet journalist and winner of the USSR State Prize, who was formerly a political observer for Central Television. It is, in fact, symbolic that this ship was turned over to our shipping company, in that a quarter of a century ago A. Kaverznev began his creative work on the Latvian Basin newspaper Latviyskiy Moryak. The tanker, which has a cargo capacity in excess of 8,500 t is equipped throughout with automatic equipment, and can be operated by as few as 18 persons. This diesel-powered ship has already been hard at work with foreign shipping lines delivering superphosphoric acid to our country.

Another ship which came to us this year is the seagoing tanker Moris Bishop, which bears the name of the former prime minister of the lawful government of Grenada, which the USA invaded in 1983. It can deliver both petroleum products and chemical cargoes. The ship was built by shipbuilders in the Yugoslavian city of Rieka. It can take about 16,000 t of cargo on board and will find use primarily in hauling methanol from Ventspils to Eastern European ports.

> The renovation of the merchant marine fleet which is registered in the ports of Riga and Ventspils, was called for in the decisions of the 26th CPSU Congress. The vessels which have been obtained are equipped with electronic control systems, which make the sailors' jobs much easier, and increase their productivity. At the same time, Latvia's ports are being renovated, highly mechanized complexes and container terminals having already been built here.

--V. Smetannikov

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MARITIME AND RIVER FLEETS

PERFORMANCE OF ARCTIC CARGO SHIP 'NORILSK' ANALYZED

Moscow MORSKOY FLOT in Russian No 8, Aug 85 pp 29-30

[Article by E. Voynov, captain of the motor vessel "Norilsk" of the Murmansk Shipping Company: "Complete Technology for Arctic Vessels"]

[Text] In November 1982 the USSR state flag was raised on the motor vessel "Norilsk"--the first in a series of multipurpose icebreaker cargo vessels. It is these vessels, in cooperation with mighty nuclear-powered and diesel vessels like the "Yermak" and "Kapitan Sorokin," that have been called upon to provide for the arctic hauling needs of our country. Therefore it is very important to collect and correlate experience from their operation, to learn thoroughly how to utilize their advantages and reveal their shortcomings, which must be taken into consideration in designing new arctic vessels.

Without any doubt these vessels are living up to their assignment. They played a very distinct role in the exceptionally difficult arctic navigation of 1983, especially in the Eastern Arctic region. However the operation of these vessels has not been without serious problems.

Correlating experience from more than two years' work on the motor vessel "Norilsk," I would like to begin with a few purely navigational problems connected specifically with sailing in the Arctic under winter conditions. There is, for example, the problem of determining the vessel's draft. In non-arctic seas even in the winter there is no serious difficulty connected with this, but in the Arctic sometimes it turns into a problem. The ice is thicker here, and therefore one cannot see the water line, but most importantly the sides of the ship are heavily covered with ice. Therefore arctic vessels absolutely must be equipped with special remote-control devices for measuring the draft. This is not a luxury, but a pressing need. Considering the shallowness of arctic seas, especially in coastal zones and port and road areas, such an apparatus would make it possible to haul large cargos and increase navigational security. Indeed it would

become possible at all times to check the actual draft of the vessel while under way.

Another problem borders closely on this one--the measurement of depth. Two echo sounders are installed on the vessel--the NEL-M4 and the NEL-3B. These are good instruments, but not for navigating in ice, since the vibrators are insufficiently reliable and give variable readings when the ship is traveling in blocks of ice. Besides, on vessels of the "Norilsk" type the vibrators are installed in the hull area which is most susceptible to impact from the ice. Bringing the vibrator shafts farther aft would not completely relieve the problem but could considerably contribute to the preservation of the vibrators. Maybe it is worth considering the question of installing measurement indicators of another type.

There are even difficulties in measuring speed. On the motor vessel "Norilsk" are installed the IEL-2M log and the "Thompson-CSF" Doppler hydroacoustical log. These are also generally good devices for clear water navigation, but in arctic ice they do not work well: the readings are not stable and the errors are randomly variable. Moreover the Doppler hydroacoustical log does not link up with the other instruments on the vessel, for instance the "Databridge" anti-collision radar adaptor, the "Magnavox 1105" automatic pilot apparatus, and "Vega" gyrocompasses. In principle an interface unit could be made and the cost would not be high. But the accuracy of the parameters being developed by the "Databridge" mechanism, like the "Magnavox," depend to a considerable degree on errors of the speed measurement device.

The "Vega" gyrocompasses are not very suited for navigation in high latitudes either. Measures must be taken to refine them.

Vessels of the "Norilsk" type which have a good capability for traveling through ice, can and should make runs on many arctic lines without ice-breaker circuits. Therefore, for navigating under polar-night conditions, they need navigational searchlights. Already installed on the wings of the upper bridge are two searchlights on the bow and a similar one in the "crow's nest." The power of each searchlight is 2 kW, the angle of luminous flux is 10.8 degrees, the diameter of the spotlight at a distance of 1 thousand meters is 190 meters, and the maximum distance is about 2.5 km. Practice has shown that when navigating in winter arctic conditions these searchlights do not provide the distance visibility needed for independent travel.

In arctic sailing, the observation and fixing of existing hydrometeorological conditions is a factor of no small importance. A weather station of the GM-6 type is installed on the vessel for this purpose. Unfortunately, its construction is

undependable and right after the vessel's inspection the station went out of commission. This happened on other vessels of the series as well.

It would not be extraneous to also have on board an apparatus for measuring the thickness of the ice. This is especially important when unloading onto shore ice. For such cases it would be desirable to incorporate a portable apparatus.

A few words about the work of the pneumatic washer. I will not go into the technical aspects of this question. But from the point of view of practical use, the system increases the vessel's ice traveling capability to a considerable degree, especially in ice covered with heavy snow and in channels broken through fast ice and filled with frozen blocks. The efficiency of the pneumatic wash is especially noticeable at slow speeds and in ice that is extremely difficult to move through, and also when the vessel is stuck in the ice.

In our opinion, it would be advantageous on vessels of the "Norilsk" type to add one more forward pneumatic washer section without introducing additional compressors. It would be used only when the vessel was stuck for washing the ice in the area of the fourth hold and the machinery compartment.

It should be noted that the existing pneumatic wash system, according to technical data, provides dependable work only with a draft of no more than 9 meters. This considerably decreases the possibility of its practical application in winter sailing in freezing non-arctic seas when the vessel may be loaded and the draft may be great.

Considering the peculiarities of work in the Arctic, where frequently there are no tugboats or it is impossible to use then, equipping arctic vessels, especially large ones, with steering devices would increase their security and mobility to a considerable degree when maneuvering in bays, ports and other constricted waters.

Of course, far from all the shortcomings of vessels of the "Norilsk" type have been mentioned in this article. There are problems connected with the economic efficiency of utilizing individual pieces of equipment and the vessel as a whole, problems of effectivly processing it in ports, of its repair, etc.

A timely discovery of all these problems will help to solve them quickly and will help to create new ice-navigation vessels.

12962
CSO: 1829/295

MARITIME AND RIVER FLEETS

INCREASINGLY SEVERE WEATHER PREDICTED FOR ARCTIC SHIPPERS

Moscow MORSKOY FLOT in Russian No 6, Jun 85 pp 36-37

[Article by A. Arikaynen, director of the Laboratory of the VNII [All-Union Scientific Research Institute of Systematic Investigations] of the GKNT [State Committee of the USSR Council of Ministers on Science a Technology] and the USSR AN [Academy of Sciences] and G. Burkov, deputy chief of the Northern Sea Route Administration: "Are Ice Conditions in the Arctic Worsening?"]

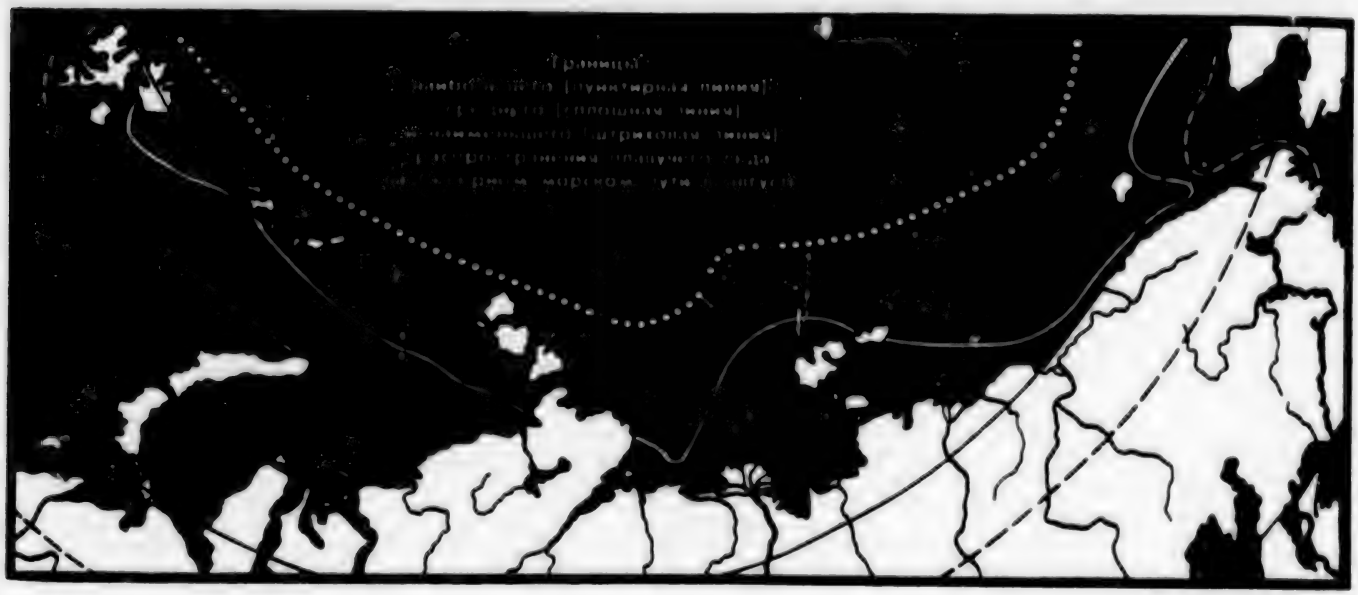
[Text] Among polar seamen in recent years, discussions arise rather frequently about a possible worsening of ice conditions on the Northern Sea Route. How justified are such discussions ? As a rule, the bases for such talk for many are the memories of the severe Arctic navigation seasons of 1979 and 1983. In those times much attention was given by the press, radio, and television to the troubles in those navigation seasons. Those navigation seasons reminded once again that special principles exist for seafaring in the Arctic. There, the safety of operation of the fleet and its economic and operational indicators depend very closely on the conditions of the ice cover on the shipping routes. As yet it is not within our power to change these principles. Such power could not be included in nuclear icebreakers. Providing for the planned transport of cargoes in Arctic seas requires careful study of the actual and the predicted ice conditions on shipping routes.

As to predicting ice conditions on the Northern Sea Route, especially for more than one year ahead of time, this is a very comlex question. Scientists hold conflicting points of view; some expect a drop in Arctic temperatures, others expect their warming up. Today, only nature herself can give an unambiguous answer, but she is in no hurry to disclose her secret.

Of course, after some 20 or 30 years, the series of ice observations will grow substantially and the study of them may make it possible to judge the trends of multiyear changes in the ice conditions on the Northern Sea Route more definitively. The lessons taught by the ice ocean in recent years, however, do not permit us to wait, and they compel us to search for the answer to the question: Are the ice conditions in the Arctic worsening or not ? Clearly, it is not an idle question, because those measures which should be taken for reinforcing the material and technical base of the Arctic fleet in the future depend on it.

This is why we made an analysis of the multiyear changes of ice conditions on the Northern Sea Route for the postwar period. We thought, that knowing about the preceding changes in ice conditions, it would be possible with some definite degree of probability to judge their subsequent trends.

It should be emphasized that the concept of the "ice conditions for navigation" has an extremely capacious character. It includes the whole framework of the characteristics of the ice cover; namely, thickness, compactness, fragmentation, the degree of pressure ridging, the degree of compression, and so on. Strictly speaking, in determining trends in the changes in ice conditions, it is necessary to study the totality of the enumerated characteristics of ice. It is well known, however, that the experienced ship operator, in selecting a favorable course for a ship in ice, in the first place is oriented toward the compactness of the ice cover, and only after this on its other characteristics. Therfore,in this report we have limited ourselves to the analysis of the extent of compact ice cover on the Northern Sea Route. This approach is more justified if it is taken into account that the other characteristics of ice, to a first approximation, are related to its compactness.



[Legend:]
Boundaries
of the greatest (dotted line)
the average (solid line)
and the least (dashed line)
spreading of floating ice
on the Northern Sea Route in August.

First of all, let us note that, for the postwar period, ice conditions in Soviet Arctic seas have been characterized by substantial seasonal and inter-year changes. This is easily seen from the boundaries of the greatest and the least spreading of floating ice in June - September within the limits of the water areas of seas adjoining the northern coast of the USSR. Beginning in June, because of the processes of melting and drifting of ice, a gradual contraction of the area of ice cover of the Arctic seas takes place. By September, the ice area becomes smallest. In some years some shipping routes are blocked by ice, and in other years, others. It is true, as observations have shown, that in specific regions of the Arctic seas, the phenomenon of ice on shipping routes takes place with greater repetition than on others. As is known, the accumulations of ice in such regions have received the name of ice packs. Among the most well known for their impassibility are the Ayon island and Taymir peninsula packs.

How were the ice conditions changing over the postwar period? In the western region of the Arctic, in the period 1951-1980 a worsening of ice conditions took place. Such a characteristic was typical both for the first and second half of the summer Arctic navigation season, while in the second half (September), the extent of compact ice on the Northern Sea Route increased rapidly. On the whole, in the western region of the Arctic, the extent of compact ice increased by a factor of approximately 1.5.

In the eastern region of the Arctic a worsening of ice conditions also took place; and, while in the first half of the navigation season the extent of compact ice increased by a factor of 1.5, in the second half it increased by a factor of more than 6. Since the average extent of compact ice in July is substantially greater than in September, as a whole, over the complete navigation period, the extent of compact ice in the eastern Arctic region increased by a factor of 1.6 in all; that is, only a little more than in the western region.

Thus, for the Northern Sea Route as a whole, an unequivical conclusion can be reached about the worsening of ice conditions. Over the years 1951-1980, the overall extent of compact ice in the first half of the summer Arctic navigation season increased by a factor of 1.4, and, in the second half, by a factor of 2.6. On the whole, over the entire summer Arctic navigation season, the extent of compact ice on the Northern Sea Route increased by a factor of about 1.5.

It can be concluded that over the time interval considered (1951-1980), the repetition of more severe navigation seasons increased and the extent of compact ice in those seasons increased. At the same time, ice conditions worsened more markedly in the second half of the navigation season when the delivery of cargoes compelled the use in a wholesale manner of ships having a small capability for navigating in Arctic ice. The complication of ice conditions cannot but have an effect on ice emergencies in the fleet and on the regularity of the flow of ships into Arctic ports. Therefore, returning to the question we posed at the beginning of the report, it can be answered conclusively: Yes, ice conditions in the Arctic are worsening.

The trend toward worsening ice conditions on the Northern Sea Route probably will continue in extreme measure in the next decade. The experience of conducting summer Arctic navigations in the beginning of the 1980s, especially the navigation season of 1983 and part of 1984 testify in favor of such an hypothesis. It is necessary also to take into account the historical experience of navigation in the Arctic from the 11th to the 19th century which shows that the 1950s through the 1970s of our century should be classified as rather favorable decades. Actually, there have been years when the northern island of Novaya Zemlya could not be approached by sea even in the second half of August because of impenetrable ice. Moreover, relatively recently in 1832, the expedition of P. Pakhtusov was unable to travel to Novaya Zemlya at all, having met compact ice on the western approaches to the island. In our time such a situation has not been observed.

In view of all that has been said, there is a basis for thinking that more probable are the predictions of those scientists who expect, toward the end of the 20th century in the Arctic, a further increase in the iciness of the seas and a return to the severe ice conditions which predominated in the region at the end of the 19th and the beginning of the 20th centuries.

9136
CSO: 1829/294

MARITIME AND RIVER FLEETS

NEW BULK CARRIER 'KHUDOZHNIK MOOR' PROFILED

Moscow MORSKOY FLOT in Russian No 6, Jun 85 pp 41-43

[Article by P. Nechitaylenko, chief of services for ships of the Novorossiysk Shipping Company, and B. Vlasenko, engineer in the section for heat engineering tests of ships: "The Bulk Carrier 'Khudozhnik Moor' " under the heading: "Fleet Facilities"]

[Text] The transport fleet of the Novorossiysk Shipping Company has been reinforced with three new, specialized and automated bulk carriers ("Khudozhnik Moor", "Sergey L@meshev", and "Vera Maretskaya") which were built at the Shipbuilding Combine imeni G. Dimitrov in Varna. These ships are a further improvement of ships of the "Sovetskiy Khudozhnik" class.

The "Khudozhnik Moor" was built to the Rules of the USSR Register of Shipping and under its supervision to the classification: KM * L3 [1] A2 (for dry bulk cargoes). The means of automation of the power plant conform to the requirements for ships having the mark, A2, in the ship's classification.

Principal Characteristics

Length: overall	184.3 m
between perpendiculars	172.0 m
Beam overall	22.8 m
Height of side amidships	14.1 m
Draft to summer load line	10.1 m
Deadweight to summer load line	24,105 t
Tonnage: gross	16,502 reg. t
net	8,577 reg. t
Unreplenished endurance according to supplies of: provisions	60 days
water	40 days
Contract speed	15.5 knots

The motorship "Khudozhnik Moor" is a single-screw, single-deck ship having a poop and short forecastle, transom stern, bulbous bow, under-deck tanks, and having its machinery and the superstructure for the accommodations and service compartments aft. The ship is for the transport of dry bulk cargoes including various ores, coal, grain, apatite, and phosphates having a specific volume of 0.38 cubic meters per ton or higher.

The fully welded hull of the ship has a longitudinal framing system in the double bottom, the deck, the region of the cargo holds and the machinery compartment. The remaining parts of the basic hull are framed transversely. The unsinkability and damaged stability of the ship are assured with any one compartment flooded. The double bottom runs from the 12th to the 198th frame. In the bow, the outer shell is thickened and reinforced with supplementary framing in accordance with the requirements of the Rules for a classification for navigating in ice. The double bottom tank top in the cargo holds is reinforced based on conducting cargo operations with grab-buckets. The main deck framing does not provide for carrying cargoes on deck.

Along both sides in the region of the cargo holds from the 46th to the 198th frame, under-deck tanks are installed which can be used both for carrying cargo or for filling with ballast. Cargo hold No. 4 also is for ballast or cargo.

The ballast tanks in the double bottom are protected by a paint and varnish covering and protectors. There is protector protection for the whole hull. A steam system for warming up the ballast, forepeak, and afterpeak tanks is installed. The heaters are smooth-pipe coils. Steam at a pressure of 0.7 MPa is delivered to them from the main steam header.

The cargo holds have folding-type mechanized hatch closures. The closures consist of four covers hinged together. Each pair of covers is opened or closed longitudinally by means of a hydraulic cylinder. The water- and gas-tight seal of the covers is provided for by a moulded rubber strip and is completed by means of manually operated dogs. The hydraulic cylinders are fed from a hydraulic pump station with two interchangeable pumps situated in the machinery compartment. Control of hatch closure is accomplished from local posts situated on the longitudinal hatch coamings. Lifting frames are installed on the ship for emergency opening of the hatch covers of the holds by means of an onshore crane. During positive air temperatures, the time for opening all hatches mechanically is not more than 20 minutes. On each hatch two ventilating heads are built into the structure of the hatch. On each hatch there are four scuttles for washing machines used in cleaning the holds.

The ship's propeller is a four bladed, right-handed, fixed pitch screw made of nickle bronze.

The rudder is the streamlined balanced type with an area of 24.6 square meters. The rudder is turned by an electrohydraulic, two-cylinder, double-acting piston engine giving a maximum torque on the rudder stock of 500 kN m.

A water firefighting system serves the machinery compartment, the living and service compartments, the region of the cargo holds and the forecastle. It also serves the foam extinguishing system and drainage ejectors. The system is served by electrically driven centrifugal pumps - two, each having a basic delivery of 130 cubic meters per hour with a head of 122 meters of water, and one emergency pump with a delivery of 54 cubic meters per hour with a head of 85 meters of water. A carbon dioxide firefighting system

is for volumetric fire extinguishment in the machinery department, the emergency diesel generator compartment, the paint locker, the engine mufflers, the spark arrestor of the auxiliary boiler, and also in the scavenging receiver of the main engine. A system of supplementary foam extinguishment (foam multiplicity 1:100) serves for extinguishing fires on the open deck, in the machinery compartment, and in the superstructure.

Lifesaving equipment on the ship includes: up to one closed type, motor lifeboat on each side of the ship each with 55 person capacity, up to two inflatable life rafts each with 12 person capacity on each side, or one on each side each with 8 person capacity.

The anchor gear is served by a type ShKAD-66 two-deck, two-spindle electric capstan. For each 6-ton Hall type anchor there is 68-mm gauge anchor chain. The mooring gear consists of four automatic electric type RAB 125 winches having a rated pulling force on the drum of 12.5 tons each situated in pairs on the forecastle and the stern.

The makeup of equipment required by international conventions includes a type OV-10 bilge water filtration installation (a Polish product), an installation for burning shipboard wastes and liquid petroleum residues (a product of Bulgaria), and an installation for the biological purification of sewage water type LK-50 (a Polish product).

The main engine is a low-speed, two-cycle, cross-head, reversible, single-acting type 6 DKRN 67/140-4 diesel with gas turbine supercharging produced by the Bryansk machine building plant. In this version, the main engine is a diesel of the fourth degree of supercharging with a rated power of 7,500 kW at 140 rpm. The engine manufacturer is allowing, including in maneuvering conditions, the use of high viscosity grades of fuel with viscosity up to 350 centistokes at 50 C. The main engine can be controlled from the bridge by means of the pneumatic and electric system FAHM-S (produced by the ASEA company of Sweden). It also may be controlled from the TsPU [Central Control Station] by means of pneumatic connections through remote control or from a local emergency control post directly on the engine.

The ship's electrical plant consists of three main synchronous, three-phase, 50 Hertz, alternating current generators each with a power of 630 kVA (400V, 910A) and on emergency generator of 120 kW. The driving engines for the generators are three type 5 AL 25/30 diesels having a rated power of 544 kW at 750 rpm produced by Kh. Tsegelskiy - Sultzer (Polish).

The steam boiler installation on the ship includes a type KSVV-2500/7 vertical watertube boiler with a productivity of 2.5 tons per hour at a pressure of 0.7 MPa, and a type KUP 2500/7, three-section, waste-heat boiler with a 304 square meter heating surface.

The ship's electroradionavigation equipment, basically, is of Soviet make.

Experience in operating ships of the "Khudozhnik Moor" class in medium latitudes, in the tropics, and in ice showed their good seagoing and ice navigation qualities.

9136
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MARITIME AND RIVER FLEETS

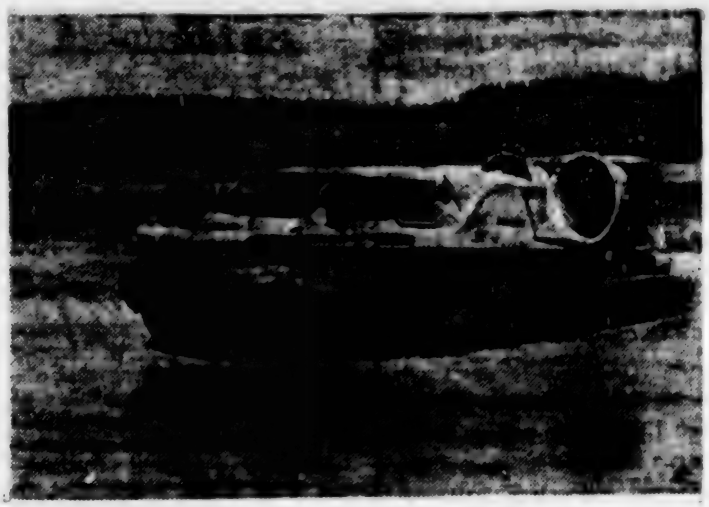
SVIR YARD TO PRODUCE SMALL HOVERCRAFT

Moscow PRAVDA in Russian 18 Jul 85 p 2

[Article taken from PRAVDA and TASS correspondents' reports: "Invented by Leningrad Shipbuilders"]

[Text] They call it the Cheetah. State trials have been completed on this Cheetah-class prototype amphibious hovercraft-boat. It was developed at the Leningrad Oblast's Svir Shipyard, where series production of the all-terrain vehicle will soon begin. It will be intended for use by geologists, drillers and hydrologists, and not only in interior waterways and in difficult-to-reach areas, but in offshore shelf areas as well.

(Photograph: A trial run of the Cheetah.)



126501
CSO: 1829/279

PORTS AND TRANSSHIPMENT CENTERS

MINISTRY CRITICIZED FOR LAGGING PORT MODERNIZATION

Moscow SOVETSKAYA ROSSIYA in Russian 3 Aug 85 p 2

[Article by G. Podlesskikh: "Inquiries Resound from the Rostrum: Why Has No Constructive Dialogue Taken Place in USSR Minrechflot on Accelerating Technical Progress?"]

[Text] One-third of all the idleness in the republic's river fleet is due to waiting in the ports for loading or discharging cargo. For the same reasons, non-self-propelled vessels stand idle up to 44 per cent of the time. This isn't merely stumbling, but a faltering step.

The utilization of costly means of transportation is, frankly, irrational and improvident. A radical change for the better requires accelerating the technical reequipment of port facilities. And what is the position of the Ministry of the River Fleet [Minrechflot] on this question?

Chief Engineer of the Main Port Administration, V. Sitayev, acquainted me with the old and the current comprehensive plans for developing and introducing advanced equipment and technology for loading and unloading operations. When you page through the documents, you get the impression that they were written with carbon paper. Everything in them is almost the same as the other. Only the years and the periods for introduction have changed. You'd like to know, why are decisions taken and approved which are not carried out? After all, this is evidence of one's own incompetence or irresponsibility. Three strikes and you're out, as they say. I admit that I didn't expect my questions to be handled so deftly, with inferences to the perfidy of the subcontractor--Mintyazhmash [Ministry of Heavy and Transport Machine Building]. As proof, I was shown the lengthy and voluminous interdepartmental correspondence files. They serve as an effective defense against the reproaches from various inspection authorities, but hardly constitute a catalyst for technical progress. And as far as Mintyazhmash is concerned, it is supplying serial production to the rivermen. And that is another subject. But what is the fate of the experimental models which were supposed to be manufactured at the enterprises of that branch? Here is a typical example.

The staff at the Leningrad Institute of Water Transport found a method for rapidly unloading grain cargoes, without losses. Before loading the grain, a rubber membrane is spread out in the hold of the vessel. After most of

the grain is unloaded, air is pumped into the membrane. And the remnants of the grain which would previously vanish between the ribs of the vessel, where it's very hard to get at, is now served up on a silver platter by means of the membrane. This innovation permits reducing the unloading time by ten per cent, and reduces the laboriousness of the cleanup work fourfold. The annual economic effect could amount to 400,000 rubles.

The scientific council of RSFSR Minrechflot gave its "OK" to developing and manufacturing an experimental model, and allocated several tens of thousands of rubles for that purpose. The membrane was manufactured and was successfully utilized for shipping the grain harvest for three navigational seasons. It would seem that its prospects were bright. But suddenly Glavport [Main Administration of Port Management and Sea Routes] retired the innovation completely. What was the matter? It apppears that the ship's crew demanded extra pay for working with the membrane. And instead of finding a solution to the problem which sprang up, the main office preferred to dismiss it from their concerns, and at the same time give up the expected savings as a bad job.

I've cited this incident only because discussing it requires no details which only specialists understand. And how many other striking examples of an indifferent, "paper-shuffling" approach to business one could cite! Were one to tally up the profits which were foregone for this reason, one would get an impressive figure. The visits to Glavport left a great many questions unanswered. The conversations we managed to have there strengthened our suppositions that there is no carefully-thought-out and firmly held technical policy at the head office, nor is it clear just what specific measures will reduce the enforced idleness of the vessels. Why are highly productive continually-operating mechanisms not widely distributed to the ports? What practical steps are envisaged for decisively turning to science for the benefit of production?

One would have thought that the extended staff meeting at which the branch headquarters responded to the CPSU Central Committee conference on questions of accelerating scientific-technical progress would have solved the accumulated problems in a well-grounded and constructive maner.

The current economic state of affairs in river transport is not among the best. Rates of developing transshipments, the growth of labor productivity, and profit rates are declining--although production costs for transferring and processing the cargoes are not. The level of utilization of the fleet is also low. The shipbuilding and repair industry, in which more than half the workers are employed at manual labor, lags behind the needs of the branch for development, and highly productive technology is not being properly introduced in the ports.

These facts, which were cited in a report by Minister L. Bagrov, did not come as a surprise to the conferees. But which link does one have to grab in order to pull out the entire chain of problems? In which directions should one concentrate one's basic efforts? Just what must be done today

--right now--and what can be put off until tomorrow? The speaker, presenting a critical analysis of the work of the branch, pointed to the insufficient contribution of scientific and planning and designing organizations in solving the tasks facing river transport. Although sharply critical, this was nevertheless the same old speech. Yes, progressive technological processes are being developed slowly and a poor job is being done in introducing them to transport and industrial activities. But why is this happening? What needs to be changed here? You were'nt able to hear this kind of analysis or such proposals in the speech.

Essentially, there was no discussion. The specialists, who mounted the rostrum one after another, were for the most part in a much better humor than the speaker. But the advice and the constructive dialog, for which purpose nearly 300 branch administrators had come together, was not forthcoming. The speakers diligently recounted the "successes achieved," and then went on to the "certain shortcomings." The minister was not pleased with the discussion, and said so in his concluding remarks. In his estimation, 50 per cent--and maybe as many as 70-80 per cent of the speeches were reports on the speakers' own activities. And 20 per cent of them amounted to expressions of agreement with the pace of the assignments which had been worked out by the ministry.

The representatives of the branch scientific organizations spoke "to the topic" more than the rest. Their speeches contained not only expressions of alarm over the current state of affairs which has come to pass in the branch, but also contained constructive, businesslike proposals on bringing science and industry closer together. For example, V. Kutyrkin, pro-rector of the Gorkiy Institute of Water Transport Engineers, proposed raising the plan for introducing scientific-research work and experimental design projects to the level of the basic directive indicators. You see, the client does not yet bear sufficient responsibility for utilizing the scientific developments. For this reason, there are fewer demands on the users, the quality of scientific-research work declines, their practical value is emasculated, and the close contact between the business partners disappears.

As a result, millions of rubles have been spent, for example, on ACS [Automatic Control Sytems], but there are only a few operating systems. A plan is introduced for large-capacity carriers, but the gross productivity in tonnage for these carriers declined by 25 per cent at the Volga River Shipping Association. A mechanized line was just put into operation at the Gorodets plant, but it is already out of use because its quality is very poor. And there are a lot of examples similar to this.

Apparently it would have been painful for V. Tokmakov, chief of the Central Planning and Design Bureau, if he had begun his speech with remarks which would have stirred up the bored and quietly-murmuring assembly, such as:

"We could increase our output in design projects by about 25 per cent tomorrow; and, don't be surprised, we could increase our output several times over in producing experimental models of new technology at our

experimental plant. To do this we need neither more people, nor a larger wage fund, nor more equipment, nor more capital investments. We need only to look at things objectively and put everything into its proper place."

But what did Viktor Petrovich plead for? The institution which he heads is the sole planning and designing organization in the branch, and has its own sufficiently strong industrial base: an experimental plant. But he cannot use it to produce new equipment. The proportion of experimental production in the enterprise's plan is on a steady downward curve, and next year most likely will amount to only six per cent. Serial articles are crowding it out. But what about this majestic serial production, for whose sake the production of models of new technology is ruthlessly struck from the plan?

Here's what it's about--pontoons for pulp pipelines, dormitory coaches, portable air conditioners for Glavflot, and so on. All of these things could be manufactured at any enterprise. Nevertheless, the practice of assigning second priority to new equipment has taken root. One would think that it's a matter of the isolation of interests here and a narrow, departmental approach at various head offices: each one is pulling for his own side, because there is no coordination. As a result there are sufficient plans for new machinery; but the machinery itself doesn't exist. Unfortunately, the proposals of the scientists were not at all analyzed in the course of the presentations, nor did they find expression in the resolutions. And after all, this extended session was convened for the purpose of defining the tasks for accelerating scientific-technical progress in river transport...

But why, after all, was there no constructive dialog at the assembly? It would appear that the same old habits took effect. For years the people who were trying to introduce technical progress at the enterprises of the river fleet have felt that their concerns were of secondary importance, and they've become resigned to this. The new technology did not go to the ports, but from document to document. As one project engineer put it, it's simpler to write an official letter than to find the solution to a problem. But in order to protect oneself, from time to time you have to "send a signal," or "pose the question." It's no wonder that quite often scientific-technical conventions turn into a collective recitation of inquiries. And the prescription for their composition has been carefully worked out: first you speak of the achievements, and then at the end about certain shortcomings. Having read off such inquiries at the sessions, you place a check mark at--measures were taken.

Today, life with its urgent problems is bringing all of us--from worker to minister, from laboratory clerk to academician--face to face with intensifying our work. But few of us have made the transition to accomplish this. Likewise, the officials at the branch headquarters, the administrators, have been unable to tear themselves away from their places, to break away from the operational-dispatcher style of administration which holds the ministry captive; and, from all appearances, they've approached this problem just like any regular, routine measure. They received an order from the ministry; they set up their business trips; and at the appointed time they

mounted the rostrum and read off their speeches--which were put together in the standard fashion, and are suitable for any agenda. Now we can get back to our everyday obligations. It's the height of the navigation season, we have too many things to do, and scientific-technical progress will just have to wait for the time being. But this "for the time being" has already been stretched out for many years. Is it not for this reason that, in spite of all the fiery and scathing instructions, telephone messages and telegrams, that ships stand idle for such a long time in the river ports?

9006
CSO: 1829/270

PORTS AND TRANSSHIPMENT CENTERS

SHIPPING COMPANY DEPUTY CHIEF ON MAGADAN PORT PROBLEMS

Moscow MORSKOY FLOT in Russian No 6, Jun 85 p 14

[Article in response to a letter to the MORSKOY FLOT editorial board under the rubric "Readers Respond": "Problems of the Port of Magadan"]

[Text] Over a year ago, an article under the above title, and written by M. Kurnosov, was published in this journal (MORSKOY FLOT, No 12 1983). It aroused the interest of our readers, labor collectives, administrative agencies and party organizations. Specifically, our journal (MORSKOY FLOT, No 11 1984) published the contents of a letter from A. Bogdanov, secretary of the Magadan CPSU obkom, wherein he informed us of the measures which have been adopted and the measures regarding the problems taken up in essence in the letter. And now we have received a letter from Vladivostok. G. Pikus, deputy chief of the Far Eastern Shipping Company, has written us an answer.

First of all, the letter's author enumerates the organizational measures, and those which have been adopted following the publication of the above-indicated article, and then summarizes the transport workers' operations as handled in Magadan during 1984.

In particular, the overall volume of cargo handled by the fleet in this direction increased 9.2 percent in 10 months, and the non-productive idle-time for the ships was reduced an average of 21.3 percent against the same period for last year. Idle time for brigades of dockers and machine operators was reduced 16.9 percent.

These achievements are encouraging, however, as G. Pikus indicates, a number of the problems touched on in the article are as yet unresolved.

As before, there exists a great disproportion in the development of the port's material resources bases and the other members of the transshipment hub. The number of freight consignees is growing rapidly. During 10 months of 1984, cargoes to the Port of Magadan were delivered to 145 consignees, at a time when, in accordance with a Gossnab decree, they were to have numbered 88. Moreover, only nine of the cargo consignees' bases are capable of receiving cargoes in 20-foot containers and only 16 can receive cargo around the clock--in the port's operational rhythm.

The letter's author impacts on an issue of particular concern to the Magadan-avtotrans [Magadan Motor Transport Association] material and technical base. This Association is experiencing an acute shortage of work (repair) areas and covered train stops. Transport is carried out in the open, and is out of order. The rates at which facilities get built are slow, not only for production facilities, but for those intended for social functions as well. There is an average of 3.3 m^2 of living space available per association worker, and the balance makes no provision for preschool facilities etc. Hence, the turnover of the work force and the shortage of drivers, both of which retard growth in the volume of freight shipped.

In conclusion, G. Pikus points out that at the end of 1984, a meeting of all of those participating in the transport process, along with representatives of USSR Gossnab, was held in Vladivostok. Participants at the meeting discussed the pressing problems concerned with providing transport, and placed particular emphasis on the need for a drastic increase in the quantity of freight shipped in packages and containers to the regions of the Extreme North, which include Magadan. The author of the letter expresses the hope that the measures being developed will help to solve the problems of the Magadan Transshipment Center. The editorial board harbors the same hope.

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PORTS AND TRANSSHIPMENT CENTERS

FAR EASTERN PORTS WORK TO LESSEN DAMAGE IN CARGO TRANSFERS

Moscow MORSKOY FLOT in Russian No 6, Jun 85 pp 9-11

[Article by V. Kulikov, chief specialist, Dalmorniiproyekt (Far Eastern Maritime Scientific Research and Planning Institute), V. Mikhaylenko, chief of the Port of Vladivostok Planning and Design Bureau and A. Shutka, chief of the Far Eastern Shipping Company port facility service: "The Transport Workers' Overall Task: Administration and Economics"]

[Excerpts] Far Eastern area longshoremen and railroad workers are sizing up the task of improving the reliability of freight shipment as they take into consideration ways to preserve the technical condition of the transport equipment. A large portion of the damage done to railcars occurs during the intense freight operations which are actively mechanized these days. The raising of the level of collective responsibility for looking after the safety of the transport equipment has been made possible in large part by the organization of the TU's [transport hubs] and the allied enterprises and organizations which were united in 1977 after the fashion of the Far Eastern Shipping Company's trade ports.

The 24 August 1981 order of the USSR Supreme Soviet Presidium "Administrative Responsibility for Violating Rules Concerning the Provision of Safety for In-Transit Freight Shipments" has played a major role in preventing and bringing to a halt cases of damage to railcars. In this connection, and within the framework of the transport hub, all the associated transport workers began to take up and implement the methods used by the Chelyabinsk workers, whereby damage done to railcars by the work force and by the equipment used by the commercial enterprises was eliminated thanks to which the effective service life of the railcar fleets was extended at their handling points.

The CPSU Central Committee-approved initiative of the Moscow industrial, construction and transport enterprises, who pledged themselves to keep each railcar sent out from the Moscow Transport Hub in good working order, was important to the development of this method. This initiative had the local support of the maritime transport enterprises, and of the MMF [Maritime Fleet] Board in 1982. Later on, the MPS [Ministry of Railways] defined more specifically the relationship between the railroads and the shipping companies, which definition was based on contracts and the form of the moral and material incentives for labor collectives and individual workers associated with the handling and repair of railcars in maritime ports.

So that is how the method of maintaining and reconditioning the railcars which came into the transport hubs, as a rule, for back-to-back loading operations (loading and unloading) came to be introduced. This method permitted the allied transport workers in a transport hub to include practically all areas of the transshipment process which were potentially hazardous to the railcars' integrity within the scope of their preventive and reconditioning work, and it became possible to exert a more active influence on the work of keeping the rolling stock in a state of readiness, even railcars damaged outside the transport hub. In the course of their interactions, the associated transport workers discovered the fundamental directions needed to prevent damage to railcars, vessels and motor vehicles.

In order to develop freight flows which were alike according to their technological features, highly mechanized complexes were set up for the transshipment of coals, industrial wood chips, aluminum oxide, grains, containers, etc. The fleet of all-purpose transshipment machinery has undergone a substantial renovation and augmentation. These machines have been outfitted with special-purpose cargo-handling gear for handling bulk grain as well as mineralized construction cargo, stacked lumber materials, medium-tonnage containers as well as fruit and vegetables. Thanks to the uniting of similar freight-flows, and to the specialization of the transport hubs according to their cargo-handling features, the intensity of railcar operations has increased by 7.6 percent, and the incidents of damaged rolling stock has been reduced by 10.3 percent.

The introduction of progressive cargo-handling processes has played a distinctive role in reducing cases of damage to the railcar park. Operations for moving cargo with minimum interaction between the freight-handling devices and transport equipment machines has been regulated. First of all, it might be well to point out the replacement of the procedure for handling railcars with coal, chemicals and wood chips by the grab-bucket method with the more up-to-date method, which uses a railcar tipper and machinery equipped with pneumatic and/or auger units to pull in the cargo mass, and heat generators, electric radiators, compressors and vibrators to loosen frozen and packed cargoes.

The fact that cargo-grabbing equipment has been changed over to all-purpose machines designed to handle railcars loaded with lumber and large-diameter pipe has had a telling effect on the condition of the rolling stock. And here we must not forget about the auxiliary equipment: the railcar platforms, loading ramps, false bilge boards and the attachments used to open and close the railcar doors and hatches.

In order to keep the equipment, attachments and machines in excellent operating condition for looking after the safekeeping of the railcars, the transport hubs have plans to carry out necessary inspections, and this is being executed within the framework of the local port inspection system. This work is being done via operational and routine periodical inspections of the equipment as well as of their technical certification. Any wear or deviation from prescribed parameters which is detected in the cargo-grabbing or any other equipment will result in its being repaired or replaced with new equipment from the required reserve.

The primary way to preserve the railcars is through the use of a progressive freight-hauling procedure which utilizes containerization and packing. At present, cement, concrete products, sanitary engineering products, industrial goods and foodstuffs, lumber etc. ought to be shipped in containers or packed. The use of special-purpose rolling stock which is now being used to ship raw sugar, potassium salt, ore concentrates etc. has been no less effective. Shipping these cargoes by this new method, and not in all-purpose railcars also reduces the amount of damage to the rolling stock.

TU innovators and rationalizers make a substantial contribution to the technical re-equipping of our transshipment complexes, to the upgrading of cargo-grabbing attachments and to the improvement of freighting procedures and the safe handling of transport equipment. The practice of holding competitions and inspections during loading and unloading operations has been conducive to creative initiative. For example, at the suggestion of the Port of Vladivostok's UKB [consolidated all-round brigade], led by V. Kashcheyev the plan for stacking wood in gondola cars and on flatcars was changed, thus reducing the amount of damage done to the cars by the grapple method during wood handling operations. Modifying the plan for reeving the grapple head cables had a positive effect here, too.

The suggestions made by the longshoremen and railroad workers of the Nakhodka and Posyet transport hubs regarding the improvement of the methods of positioning and anchoring heavyweight equipment, large-tonnage containers and large-diameter pipe were also extremely interesting, since they reduced the volume of tie-down work 1.5-2-fold, with no concomitant reduction in the safety of the cargo or the railcars.

The assimilation of new progressive cargo-handling processes has been made possible in large part by efficient forms of labor organization during loading and unloading operations. The transshipping centers are presently serviced by KhSUKB's [Autonomously-financed Specialized Consolidated All-Round Brigades] and UKB's. Their membership consists of 86.7 percent of all the dockers and machine operators.

Regrettably, the educational level of the shipping companies' dockworkers is still insufficiently high, the reason for this being the appreciable turnover (21.2 percent) in the work force. This fault can be somewhat eliminated through the established expedient of training, certifying and re-certifying the dockers and machine operators. This is a practice which also takes in the operational and administrative personnel of the transshipment complexes. Training is accomplished through the implementation of educational-course combines which have been set up in the basin's major ports.

Today it is perfectly clear that the 12th Five-Year Plan period ought to witness decisive development in the specialization of the railcar park, the makeup of which presently effects not only the intensity of its freight-handling operations, but damage prevention as well. All these measures must be decis-

ively and unremittingly brought to fruition. There is an obvious need to speed up the replacement of the all-purpose rolling stock with self-loading mineral cars which are used for hauling potassium salt, flatcar stacking cars equipped with permanent mechanized fasteners for shipping faggot-stacked sawn timber, and with hopper cars, grain cars and container cars. It is high time to improve the design of our all-purpose boxcars by widening the doorways up to 2,800 mm and reinforcing the floors for increased-load operations.

All of these problems have taken on great importance in our area. Much has been done, and there is still a lot to do. The far-eastern transport workers' collectives, having developed socialist competition for a worthy greeting to the glorious date of the 50th Anniversary of the Stakhanovite Movement, are fully resolved to insure the safety of the transport equipment and the national economy's cargoes, and to improve the entirety of transport operations.

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